UNIT_LINK	UnitLinkShort	UNIT_NAME	UNIT_AGE	UNITDESC	FSP	STRAT_UNIT
ORbc;0	ORbc	Amphibolite of Briggs Creek (Mesozoic or Paleozoic)	Paleozoic or Mesozoic	Informally called the "Briggs Creek amphibolite" by Garcia (1976) and by Coleman and others (1976). Consists of amphibolite, micaceous quartzite, quartz schist, and recrystallized manganiferous chert. Includes structurally complex amphibole schist and qu	1	
ORcm;0	ORcm	Condrey Mountain Schist (Triassic? and Paleozoic?)	Paleozoic(?) to Jurassic	Consists of a variety of schistose rocks characterized by different proportions of muscovite, quartz, graphite, chlorite, actinolite, and epidote, rare thin layers of metachert, and clinozoisite-actinolite-albite-garnet metagabbro. Potassium-argon age on	2	
ORcs;0	ORcs	Colebrooke Schist (Mesozoic or Paleozoic)	Paleozoic or Mesozoic	Metamorphosed pelitic sedimentary rocks and subordinate metamorphosed submarine pillow lavas and pyroclastic beds of basaltic composition. Metamorphic age is Early Cretaceous (about 130 Ma), according to Coleman (1972), and protolith may be Jurassic or o	2	
ORice;0	ORice	Ice	Holocene		1	
ORJc;0	ORJc	Chetco complex of Hotz (1971) (Jurassic)	Late Jurassic	Informally named unit representing island-arc volcanic complex comprised predominantly of igneous and metamorphosed volcanic rocks; includes gabbro, metagabbro, quartz diorite, and amphibolite	1	
ORJm;0	ORJm	Melange (Jurassic)	Jurassic	Structurally complex mixture of basaltic rocks, serpentinite, chert, argillite, conglomerate, silty sandstone, and lenses of marble composing the melange of the Takilma area of Smith and others (1982)	2	
ORJop;0	ORJop	Otter Point Formation of Dott (1971) and related rocks (Upper Jurassic)	Late Jurassic	Highly sheared graywacke, mudstone, siltstone, and shale with lenses and pods of sheared greenstone, limestone, chert, blueschist, and serpentine. Identified as melange by some investigators	3	
ORJs1;0	ORJs1	Sedimentary rocks (Jurassic)	Late Jurassic	Black and gray mudstone, shale, siltstone, graywacke, andesitic to dacitic water-laid tuff, porcelaneous tuff, and minor interlayers and lenses of limestone and fine-grained sediments metamorphosed to phyllite or slate. Locally includes some felsite, and	3	
ORJs2;0	ORJs2	Sedimentary rocks (Jurassic)	Jurassic	Black and gray mudstone, shale, siltstone, graywacke, andesitic to dacitic water-laid tuff, porcelaneous tuff, and minor interlayers and lenses of limestone and fine-grained sediments metamorphosed to phyllite or slate. Locally includes some felsite, and	3	Group (OR028)Snowshoe Formation (OR070)Shaw Member of Snowshoe Formation (OR028)Keller Creek Shale (OR008)Weberg Formation (OR070)Warm Springs Formation (OR070)Trowbridge Formation (OR070)Lonesome Formation (OR070
ORJss;0	ORJss	Shale, mudstone, and sandstone (Jurassic)	Late Jurassic	Black to gray shale, mudstone, and sandstone with local lenses of pebble conglomerate. Overlies Josephine ophiolite of Harper (1980) (unit Ju)	3	
ORJTRgd1;0	ORJTRgd1	Granite and diorite (Jurassic and Triassic)	Triassic and Jurassic	Felsic to intermediate, granitoid intrusive rocks. Includes Jurassic muscovite granodiorite, hornblende gabbro, tonalite, and quartz diorite of southwest Oregon (Smith and others, 1982)	1	

ORJTRgd2;0	ORJTRgd2	Granite and diorite (Jurassic and Triassic)	Triassic to Jurassic	Felsic to intermediate, granitoid intrusive rocks. Includes Jurassic muscovite granodiorite, hornblende gabbro, tonalite, and quartz diorite of southwest Oregon (Smith and others, 1982)	1	Oxbow Complex (OR104; OR105)Canyon Mountain Complex (OR008; OR078)
ORJTRs;0	ORJTRs	Sedimentary rocks (Jurassic and Upper Triassic)	Triassic to Jurassic	Black, dark-gray, and dark -brownish-gray, thin-bedded siliceous or limy mudstone mostly consists of the Hurwal Formation in the Wallowa Mountains. In lower and middle parts contains Triassic fossils and in upper part Early Jurassic fossils (Nolf, 1966).	3	Hurwal Formation (OR074)
ORJTRsv;0	ORJTRsv	Sedimentary and volcanic rocks (Jurassic and Upper Triassic?)	Late Triassic? to Jurassic	Olive-drab, pale-brown, dark-gray, and black volcanic graywacke and siltstone; lesser conglomerate and slate, and minor limestone and chert. Includes more extensive outcrops of Triassic or Jurassic limestone at north base of Juniper Mountain in northern	3	Weatherby Formation (OR186)
ORJu;0	ORJu	Ultramafic and related rocks of ophiolite sequences (Jurassic)	Paleozoic(?), Triassic(?), and Jurassic	Predominantly harzburgite and dunite with both cumulate and tectonite fabrics. Locally altered to serpentinite. Includes gabbroic rocks and sheeted diabasic dike complexes. Comprises Josephine ophiolite of Harper (1980), ophiolites of Onion Mountain, Sex	2	
ORJub;0	ORJub	Ultramafic and related rocks of ophiolite sequences; Basaltic volcanic and sedimentary rocks (Jurassic)	Jurassic	Basalt flows, flow breccia, agglomerate, pillow basalt and pillow breccia, and lesser shale, chert, siltstone, and mudstone of ophiolitic complexes	2	
ORJv;0	ORJv	Volcanic rocks (Jurassic)	Late Jurassic	Lava flows, flow breccia, and agglomerate dominantly of plagioclase, pyroxene, and hornblende porphyritic and aphyric andesite. Includes flow rocks that range in composition from basalt to rhyolite as well as some interlayered tuff and tuffaceous sedimen	1	
ORKc;0	ORKc	Clastic sedimentary rocks (Upper and Lower Cretaceous)	Early to Late Cretaceous	Locally fossiliferous sandstone and conglomerate; marine fossils indicate Early Cretaceous (Albian) age (Jones, 1960). Includes the Hornbrook Formation of Peck and others (1956), the Grove Creek strata of Jones (1960) and Page and others (1977), Hunters	3	Houstenaden Creek Formation
ORKJds1;0	ORKJds1	Sedimentary rocks of Dothan Formation and related rocks (Lower Cretaceous and Upper Jurassic)	Late Jurassic to Early Cretaceous	Sandstone, conglomerate, graywacke, rhythmically banded chert lenses. Includes western Dothan and Otter Point Formations of M.C. Blake, Jr. and AS. Jayko (unpublished data, 1985) in Curry and southern Coos Counties	3	
ORKJds2;0	ORKJds2	Sedimentary rocks of Dothan Formation and related rocks (Lower Cretaceous and Upper Jurassic)	Late Jurassic to Late Cretaceous	Sandstone, conglomerate, graywacke, rhythmically banded chert lenses. Includes western Dothan and Otter Point Formations of M.C. Blake, Jr. and AS. Jayko (unpublished data, 1985) in Curry and southern Coos Counties	3	
ORKJdv;0	ORKJdv	Volcanic rocks of the Dothan Formation and related rocks (Lower Cretaceous and Upper Jurassic)	Late Jurassic to Early Cretaceous	Basaltic pillow lavas, volcanic breccia, and silicified basalt lava flows	1	

ORKJg;0	ORKJg	Granitic rocks (Cretaceous and Jurassic)	Late Jurassic and Early Cretaceous	Mostly tonalite and quartz diorite but including lesser amounts of other granitoid rocks. Potassium-argon ages determined on hornblende indicates plutons range in age from 143 to 166 Ma (Hotz, 1971)	1	
ORKJgu;0	ORKJgu	Gabbro and ultramafic rocks associated with granitic plutons (Cretaceous and Jurassic)	Late Jurassic and Early Cretaceous	Predominantly hornblende gabbro, gabbro, and olivine gabbro, but includes pyroxenite, hornblende pyroxene, and minor peridotite, dunite, and serpentinite (Smith and others, 1982)	1	
ORKJi;0	ORKJi	Intrusive rocks (Cretaceous and Jurassic)	Jurassic to Cretaceous	Hornblende and biotite quartz diorite (tonalite), trondhjemite, granodiorite, and small amounts of norite, in batholithic masses and large dikelike bodies. Includes Bald Mountain Tonalite and Anthony Lake Granodiorite of Taubeneck (1957), tonalite and tr	1	
ORKJm;0	ORKJm	Myrtle Group (Lower Cretaceous and Upper Jurassic)	Late Jurassic to Early Cretaceous	Conglomerate, sandstone, siltstone, and limestone. Locally fossiliferous. As shown, includes Riddle and Days Creek Formations (Imlay and others, 1959; Jones, 1969)	3	
ORKs;0	ORKs	Sedimentary rocks (Cretaceous)	Cretaceous	Marine graywacke, subgraywacke, conglomerate, and shale. Pebbles and cobbles in conglomerate are well rounded volcanic and metavolcanic rocks, low-grade metasedimentary rocks, quartzite, chert, and minor silicic and intermediate plutonic rocks. Shales	3	Hudspeth Formation (OR049)Gable Creek Formation (OR049)Bernard Formation (OR028)
ORmc;0	ORmc	May Creek Schist (Paleozoic)	Paleozoic(?) to Jurassic	Layered amphibolite, schist, gneiss, and quartzite. Protolith considered to be of Paleozoic age	1	
ORmr;0	ORmr	Mixed rocks (Mesozoic and Paleozoic)	Paleozoic to Mesozoic	Intermingled, commonly highly sheared metasedimentary, metavolcanic, and igneous rocks. Includes serpentinite, altered gabbro, chert, siliceous phyllite, greenstone, and limestone	2	
ORPsv;0	ORPsv	Sedimentary and volcanic rocks, partly metamorphosed (Permian and Permian?)	Permian	Epiclastic and volcaniclastic rocks, chert, limestone, and lava flows of mid- or Early Permian(?) age that are moderately to intensely metamorphosed. Includes part of Hunsaker Creek Formation of Vallier (1977), in the eastern Blue Mountains province, com	2	Hunsaker Creek Formation (OR075)
ORPZs;0	ORPZs	Sedimentary rocks, partly metamorphosed (Paleozoic)	Paleozoic	Well-bedded limestone, fossiliferous cherty limestone, calcareous and carbonaceous sandstone, chert grit, argillite, and some conglomerate. In places foliated and metamorphosed. Includes fault slivers of Devonian rocks (Kleweno and Jeffords, 1961), Coffe	2	Coffee Creek Formation (OR085; OR091)Spotted Ridge Formation (OR085; OR091)
ORPZsv;0	ORPZsv	Sedimentary and volcanic rocks, partly metamorphosed (Paleozoic)	Paleozoic	Undifferentiated sedimentary and volcanic rocks some of which are highly deformed and locally metamorphosed to amphibolite and schist. Occurs mostly in Strawberry and Aldrich Mountains of the Blue Mountains province. Includes undivided Paleozoic rocks an	2	Dixie Butte Meta-andesite
ORQa;0	ORQa	Andesite (Holocene and Pleistocene)	Quaternary	Forms major stratovolcanoes dominantly of aphyric to porphyritic basaltic andesite and andesite; phenocrysts are principally pyroxene, olivine, plagioclase, and, rarely, hornblende. Locally includes dacite and minor basalt	1	

ORQal;0	ORQal	Alluvial deposits (Holocene)	Holocene	Sand, gravel, and silt forming flood plains and filling channels of present streams. In places includes talus and slope wash. Locally includes soils containing abundant organic material, and thin peat beds	3	
ORQb;0	ORQb	Basalt and basaltic andesite (Holocene and Pleistocene)	Pleistocene to Holocene	Thin flows of aphyric and porphyritic basalt and basaltic andesite, and open-textured (dikytaxitic), generally nonporphyritic, subophitic olivine basalt that commonly is highly feldspathic. Also includes some dissected intracanyon flows of porphyritic ba	1	
ORQba;0	ORQba	Basaltic andesite and basalt (Holocene? and Pleistocene)	Quaternary	Flows and flow breccia dominantly of basaltic andesite containing plagioclase, olivine, and pyroxene phenocrysts and olivine-bearing basalt representing part of the volcanic sequence of the High Cascade Range (Thayer, 1937). Unit mostly forms small shiel	1	
ORQd;0	ORQd	Dune sand (Holocene)	Holocene	Large areas of windblown sand composed of rock-forming minerals, mostly feldspar and small amounts of quartz, and, in southeastern Oregon, also pumice	3	
ORQf;0	ORQf	Fanglomerate (Holocene? and Pleistocene)	Pleistocene to Holocene	Poorly sorted and poorly stratified alluvial fan debris, slope wash, colluvium, and talus; composed mostly of silt and fragments of basalt, basaltic andesite, and andesite. In places includes small areas of pediment gravels and colluvium	3	
ORQg;0	ORQg	Glacial deposits (Pleistocene)	Pleistocene	Unsorted bouldery gravel, sand, and rock flour in ground, terminal, and lateral moraines. Locally partly sorted	3	
ORQgf;0	ORQgf	Glaciofluvial deposits	Pleistocene	Poorly sorted	3	
ORQgs;0	ORQgs	Glaciofluvial, lacustrine, and pediment sedimentary deposits (Holocene and Pleistocene)	Pleistocene	Unconsolidated, poorly sorted silt, sand, and gravel. Includes lacustrine deposits west of Columbia River Gorge (Trimble, 1963). Mostly in northern Morrow and Umatilla Counties where unit represents deposits of swollen late Pleistocene Columbia River (Ho	3	
ORQl;0	ORQl	Loess (Holocene and Pleistocene)	Pleistocene to Holocene	Windblown clayey silt and fine sand. Includes the Pleistocene Palouse Formation and deposits derived mostly from reworking of Palouse Formation. Contains local interbedded layers of soil, caliche, and some water-laid silt and gravel	3	Palouse Formation
ORQlb;0	ORQlb	Late basalt (Holocene or upper Pleistocene)	Late Pleistocene to Holocene	Thin flows of scoriaceous, mostly olivine-bearing basalt in southeast Oregon; upper surfaces of flows characterized by blocky, spiny, or pahoehoe structures and by pressure ridges and tumuli, all essentially unmodified by erosion. Occurs at Diamond and J	1	

ORQls;0	ORQls	Landslide and debris-flow deposits (Holocene and Pleistocene)	Pleistocene to Holocene	Unstratified mixtures of fragments of adjacent bedrock. Locally includes slope wash and colluvium. Largest slides and debris flows occur where thick sections of basalt and andesite flows overlie clayey tuffaceous rocks. May include some deposits of late	3	
ORQma;0	ORQma	Mazama ash-flow deposits (Holocene)	Holocene	Rhyodacitic to andesitic ash-flow deposits related to climactic eruptions of Mount Mazama about 6,845 yr B.P. (14C) (Bacon, 1983)	3	
ORQmp;0	ORQmp	Mazama pumice deposits (Holocene)	Holocene	Primary and reworked air-fall rhyodacite pumice related to climactic eruptions of Mount Mazama about 6,845 yr B.P.(14C). Mapped only where it extensively covers older units	3	
ORQpl;0	ORQpl	Playa deposits (Holocene)	Holocene	Clay, silt, sand, and some evaporites	3	
ORQrd;0	ORQrd	Rhyolite and dacite (Holocene and Pleistocene)	Pleistocene to Holocene	Domes and related flows and flow breccia of aphyric and plagioclase and hornblende porphyritic rhyolite and dacite. Includes rhyolite and dacite on Newberry volcano and at South Sister volcano in the Cascade Range that are younger than Mazama ash deposit	1	
ORQs;0	ORQs	Lacustrine and fluvial sedimentary rocks (Pleistocene)	Pleistocene	Unconsolidated to semiconsolidated lacustrine clay, silt, sand, and gravel; in places includes mudflow and fluvial deposits and discontinuous layers of peat. Includes older alluvium and related deposits of Piper (1942), Willamette Silt (Allison, 1953; We	3	
ORQt;0	ORQt	Terrace, pediment, and lag gravels (Holocene and Pleistocene)	Pleistocene to Holocene	Unconsolidated deposits of gravel, cobbles, and boulders intermixed and locally interlayered with clay, silt, and sand. Mostly on terraces and pediments above present flood plains. Includes older alluvium of Smith and others (1982) in the Klamath Mountai	2	
ORQTa;0	ORQTa	Andesite (Pleistocene and Pliocene)	Pliocene to Pleistocene	Flows and flow breccia in the High Cascade Province composed dominantly of aphyric to porphyritic basaltic andesite and andesite. Mostly represents remnants of moderately to deeply eroded stratovolcanoes. Phenocrysts are mostly plagioclase, olivine, clin	1	
ORQTb;0	ORQTb	Basalt (Pleistocene and Pliocene)	Pliocene to Pleistocene	Thin flows and minor flow breccia of open--textured (diktytaxitic) olivine basalt in southeastern part of map area. Locally contains thin interbeds of sedimentary rocks. Grades laterally through palagonite tuff and breccia into sedimentary rocks (unit QT	1	
ORQTba;0	ORQTba	Basalt and basaltic andesite (Pleistocene and Pliocene)	Pliocene to Pleistocene	Flows, flow breccia, and pyroclastic deposits. Flows are aphanitic to finely crystalline, commonly diktytaxitic, and aphyric to porphyritic. Textures are mostly intergranular grading to intersertal; some andesite flows are finely trachytic and a few basa	1	
ORQTg;0	ORQTg	Terrace gravels (Pleistocene and Pliocene)	Pliocene to Pleistocene	Unconsolidated to poorly consolidated, poorly sorted gravels and bouldery soil above modern stream channels. In Cascade Range, clasts mostly basalt and andesite. Includes some glacial outwash deposits. In Eastern Oregon, commonly cemented by caliche	2	

ORQTib;0	ORQTib	Intrusive basalt and andesite (Pleistocene, Pliocene, and Miocene)	Miocene to Pleistocene	Sills, plugs and dikes of basaltic andesite, basalt, and andesite. In the Cascade Range most of these represent feeders, exposed by erosion, for flows and flow breccias of units Tba and Trb and a few are feeders for units QTba and QTa; in foothills of we	1	
ORQTmv;0	ORQTmv	Mafic vent complexes (Pleistocene, Pliocene, and Miocene?)	Late Miocene to Pleistocene	Plugs, dikes, and related near-vent flows, breccia, cinders, and agglutinate of basalt, basaltic andesite, and andesite; commonly in the form of either little-modified lava cones or partly eroded piles of reddish, iron-stained thin flows and fragmental e	1	
ORQTp;0	ORQTp	Pyroclastic ejecta of basaltic and andesitic cinder cones (Holocene, Pleistocene, Pliocene, and Miocene?)	Miocene to Holocene	Mostly unconsolidated, oxidized, fine to coarse, scoriaceous cinders, bombs, and agglutinate deposited in subaerial environment	2	
ORQTps;0	ORQTps	Subaqueous pyroclastic ejecta of basaltic and andesitic cinder cones (Holocene, Pleistocene, Pliocene, and Miocene?)	Miocene to Holocene	Partly consolidated, palagonitized, fine to coarse, scoriaceous altered cinders, bombs, breccia, and minor agglutinate, mostly deposited in subaqueous environment. Commonly with some interlayers and intermixed lacustrine sedimentary rocks. Forms palagoni	2	
ORQTs;0	ORQTs	Sedimentary rocks (Pleistocene and Pliocene)	Pliocene to Pleistocene	Semiconsolidated lacustrine and fluvial ashy and palagonitic sedimentary rocks, mostly tuffaceous sandstone and siltstone; locally contains abundant palagonitized basaltic debris and some pebble conglomerate. Includes alluvial gravel and mudflow deposits	3	
ORQTst;0	ORQTst	Tuffaceous sedimentary rocks and tuffs (lower? Pleistocene or Pliocene)	Pliocene to Early Pleistocene	Rhyolitic to andesitic ash-flow tuffs, pumice-fall deposits, minor mud flows, and older alluvium on the flanks of Newberry volcano (MacLeod and others, 1981; 1982) and in areas west and northwest of Bend	3	
ORQTvm;0	ORQTvm	Mafic vent deposits (Pleistocene, Pliocene, and Miocene?)	Miocene to Pleistocene	Mostly in small stratovolcanoes or shield volcanoes and lava cones of basalt and andesite. Includes agglomerate, breccia, scoria, cinders, ash, restricted flows, and small basaltic intrusive bodies. Transitional into pyroclastic rocks of cinder cones (QT	1	
ORQTvs;0	ORQTvs	Silicic vent deposits (Pleistocene and Pliocene)	Pliocene to Pleistocene	Complex domal masses of rhyolite and dacite that include near-vent flows, breccia, pumicite, perlite, obsidian, and ash-flow tuff	2	
ORQyb;0	ORQyb	Youngest basalt and basaltic andesite (Holocene)	Holocene	Little-modified flows and associated breccia of basaltic andesite and some basalt in both central part of Cascade Range and on slopes of Newberry Volcano. Relations to Mazama pumice deposits indicate most of these rocks are less than 6,800 yr old (14C);	1	
ORTa;0	ORTa	Alsea Formation (Oligocene and upper Eocene)	Late Eocene to Oligocene	Massive to thick-bedded tuffaceous marine siltstone and fine-grained sandstone; locally concretionary. Foraminiferal assemblages assigned to the Zemorrian and upper Refugian Stages (Kleinpell, 1938; Rau, 1975) and molluscan fauna assigned (Snavely and ot	3	

ORTas;0	ORTas	Andesite and dacite and sedimentary rocks (Miocene? and Oligocene)	Oligocene to Miocene	Lava flows, breccia, volcaniclastic and epiclastic rocks mostly of andesitic and dacitic composition; includes minor amounts of altered basaltic rocks. Joint surfaces and cavities commonly lined with hematite or montmorillonite clay, secondary silica min	2	Alvord Creek Formation (OR064; formerly Alvord Creek Beds; 062)
ORTat;0	ORTat	Silicic ash-flow tuff (lower Pliocene and upper Miocene)	Late Miocene to Early Pliocene	Ash-flow tuff and associated pumiceous air-fall tuff mostly of rhyolitic and rhyodacitic composition; includes minor tuffaceous sedimentary rocks. Grades laterally through less-densely welded tuff to nonwelded ash-flow tuff and interlayered tuffaceous se	3	(OR026)Rattlesnake Ash-Flow Tuff (OR026)Danforth Formation (obsolete) (OR018)Columbia River Group (OR008)Peyerl Tuff (OR032)Wildcat Creek Welded Ash-Flow Tuff (OR156; OR157)
ORTb;0	ORTb	Basalt (upper and middle Miocene)	Middle to Late Miocene	Basalt flows, flow breccia, and basaltic peperite; minor andesite flows; some interbeds of tuff and tuffaceous sedimentary rocks. Basalt is aphyric to moderately porphyritic with phenocrysts of plagioclase and olivine and exhibits both subophitic and dik	1	andesite flows on Freezeout Mountain (Freezeout Mountain Voilcanics; OR141)Owyhee Basalt (OR023; OR024)Tims Peak Basalt (OR023; OR024)Blackjack Basalt (OR121)Flows of Hammond Hi
ORTba;0	ORTba	Basalt and andesite (Miocene)	Miocene	Lava flows and breccia of aphyric and plagioclase porphyritic basalt and aphyric andesite; locally includes flow breccia, peperite, some palagonite tuff and breccia, and minor silicic ash-flow tuff and interbeds of tuffaceous sedimentary rocks. In Basin	1	Steens Basalt (Steens Mountain Basalt (OR118; OR062)Hunter Creek Basalt (OR023; OR024)Basalt and latite unit (OR159; OR165)Basalt of Bishop's Ranch (OR023; OR024)Flows of Prineville chemical type (OR049)Basalt of Malheur Gorge (OR114; OR117; formerl
ORTbaa;0	ORTbaa	Basaltic and andesitic rocks (upper and middle Miocene)	Middle to Late Miocene	Lava flows and flow breccia of hypersthene and olivine andesite, basaltic andesite containing plagioclase and pyroxene phenocrysts, and basalt; many flows contain phenocrysts of both hypersthene and augite. Includes interbedded volcaniclastic and epiclas	1	
ORTbas;0	ORTbas	Andesitic and basaltic rocks on Steens Mountain	Miocene	Called Steens Mountain Volcanic Series by Walker (1977); Steens Mountain Andesitic Series of Fuller (1931) and Williams and Compton (1953)	1	Steens Mountain Volcanics (OR184; formerly Steens Mountain Volcanic Series; OR062)Steens Mountain Andesitic Series (OR062; OR064)Pike Creek Formation (OR184; formerly
ORTc;0	ORTc	Columbia River Basalt Group and related flows (Miocene)	Miocene	Subaerial basalt and minor andesite lava flows and flow breccia; submarine palagonitic tuff and pillow complexes of the Columbia River Basalt Group (Swanson and others, 1979); locally includes invasive basalt flows. Flows locally grade laterally into sub	1	Tcs, Saddle Mountains BasaltTcw, Wanapum BasaltTcg, Grande Ronde BasaltTcp, Picture Gorge BasaltTci, Imnaha Basalt
ORTca;0	ORTca	Clastic rocks and andesite flows (lower Oligocene?, Eocene, and Paleocene?)	Paleocene to Early Oligocene	Mostly andesitic lava flows, domes, breccia, and small intrusive masses and lesser basaltic to rhyolitic rocks; interlayered saprolite, bedded volcaniclastic and epiclastic mudstone, claystone, siltstone, sandstone, conglomerate, and mudflow (lahar) depo	2	Clarno Formation

ORTcg;0	ORTcg	Grande Ronde Basalt (middle and lower Miocene)	Early to Middle Miocene	Flows of dark-gray to black, aphyric tholeiitic basalt, including both high- and low-Mg chemical types (Swanson and others, 1979). Potassium-argon ages mostly in the range of 15 to 17 Ma (Lux, 1982; Watkins and Baksi, 1974; Fiebelkorn and others, 1983)	1	
ORTci;0	ORTci	Imnaha Basalt (lower Miocene)	Early Miocene	Mostly coarse-grained, plagioclase porphyritic basalt; flows commonly contain zeolite amygdules and montmorillonitic alteration is widespread. Potassium-argon ages mostly 16 to 17 Ma (McKee and others, 1981)	1	
ORTco;0	ORTco	Cowlitz Formation (upper and middle Eocene)	Middle Eocene to Late Eocene	Micaceous, arkosic to basaltic marine sandstone, siltstone, and mudstone. Foraminiferal assemblages are referred to the upper Narizian Stage of Mallory (1959) in Newton and Van Atta (1976)	3	
ORTcp;0	ORTcp	Picture Gorge Basalt (middle and lower Miocene)	Early to Middle Miocene	Flows of aphyric and plagioclase porphyritic flood basalt. Potassium-argon ages mostly 15.0 to 16.4 Ma (Watkins and Baksi, 1974; Fiebelkorn and others, 1983)	1	
ORTcs;0	ORTcs	Saddle Mountains Basalt (upper and middle Miocene)	Middle to Late Miocene	Petrographically diverse flows of basalt erupted between about 13.5 and 6 Ma (McKee and others, 1977; Swanson and others, 1979)	1	
ORTcss;0	ORTcss	Continental sedimentary rocks (upper and middle Miocene)	Middle Miocene to Late Miocene	Poorly sorted and poorly bedded, fine- to coarse-grained tuffaceous siltstone, sandstone, pebble conglomerate, agglomerate, volcanic cobble conglomerate, air-fall tuff, and rare basaltic andesite flows equivalent to those in unit Tba. Included in the Mio	3	
ORTct;0	ORTct	Predominantly tuffaceous facies of Clarno Formation (lower Oligocene? and Eocene)	Eocene to Early Oligocene	Mapped separately by Swanson (1969a) in the Ochoco and Maury Mountains of the Blue Mountains Province	3	
ORTcw;0	ORTcw	Wanapum Basalt (middle Miocene)	Middle Miocene	Flows of gray to dark-gray, medium-grained, commonly plagioclase porphyritic basalt of Frenchman Springs petrochemical type (Wright and others, 1973). Generally exhibits blocky to platy jointing. Potassium-argon ages mostly about 15 Ma (Lux, 1982; Fiebel	1	
ORTfc;0	ORTfc	Flows and clastic rocks, undifferentiated (Miocene)	Miocene	Chiefly basaltic andesite and andesite lava flows and flow breccia containing plagioclase and pyroxene (hypersthene and augite) phenocrysts, mudflows (lahars), and volcanic conglomerates; locally includes some dacite flows. Includes lesser, coarse- to fi	1	
ORTfe;0	ORTfe	Fisher and Eugene Formations and correlative rocks (Oligocene and upper Eocene)	Late Eocene to Oligocene	Thin to moderately thick bedded, coarse- to fine-grained arkosic and micaceous sandstone and siltstone, locally highly pumiceous, of the marine Eugene Formation; and coeval and older andesitic lapilli tuff, breccia, water-laid and air-fall silicic ash of	3	
ORTfeb;0	ORTfeb	Basaltic rocks	Late Eocene to Oligocene	Probably part of Fisher Formation	1	
ORTfee;0	ORTfee	Marine Eugene Formation, where mapped separately	Late Eocene to Oligocene		3	

ORTfee?;0	ORTfee?	Marine Eugene Formation, where mapped separately	Late Eocene to Oligocene		3	
ORThi;0	ORThi	Hypabyssal intrusive rocks (Miocene and Miocene?)	Miocene	Hypabyssal, medium-grained, hornblende diorite and quartz diorite in small stocks and large dikes; includes intrusions of medium- to fine-grained gabbro and plugs and small stocks of medium-grained, holocrystalline, olivine andesite. Also includes medium	1	
ORTi;0	ORTi	Mafic intrusions (Oligocene)	Oligocene	Sheets, sills, and dikes of massive granophyric ferrogabbro; some bodies strongly differentiated and include pegmatitic gabbro, ferrogranophyre, and granophyre (MacLeod, 1981). Plagioclase and amphibole from unit have yielded K-Ar ages of about 30 Ma (Sn	1	
ORTia;0	ORTia	Alkalic intrusive rocks (Oligocene and Eocene)	Eocene to Oligocene	Sills, dikes, stocks, and irregular intrusions of porphyritic or aphanitic camptonite, shonkinite, and. nepheline syenite or phonolite. Potassium-argon ages of 32 to 35 Ma obtained on camptonite and nepheline syenite (Snavely and others, 1976c; Fiebelkor	1	
ORTib;0	ORTib	Basalt and andesite intrusions (Pliocene, Miocene, and Oligocene?)	Oligocene(?) to Pliocene	Sills, plugs and dikes of basaltic andesite, basalt, and andesite. Mostly represents feeders, exposed by erosion, for flows and flow breccias of units Tba and Trb. Includes a few dikes of hornblende and plagioclase porphyritic andesite, commonly altered,	1	
ORTig;0	ORTig	Intrusive gabbroic rocks (Oligocene and Eocene)	Eocene to Oligocene	Sills and dikes of basalt, diabase, gabbro, and granophyric gabbro; locally albitized and zeolitized (Snavely and others, 1976a, b)	1	
ORTim1;0	ORTim1	Mafic and intermediate intrusive rocks (Miocene)	Miocene	Dikes, plugs, and sills of basalt, diabase, gabbro, and lesser andesite that fed many of the Miocene basalt and andesite flows in unit Tc. Some intrusions are rootless and are invasive into sedimentary sequences; includes related breccia and peperite. In	1	
ORTim2;0	ORTim2	Mafic and intermediate intrusive rocks (Pliocene and Miocene)	Miocene to Pliocene	Dikes, plugs, and sills of basalt, diabase, gabbro, and lesser andesite that fed many of the Miocene basalt and andesite flows in units Tc and Tba. Some intrusions are rootless and are invasive into sedimentary sequences; includes related breccia and pe	1	
ORTlf;0	ORTlf	Lacustrine and fluvial deposits (Miocene)	Miocene	Poorly to moderately consolidated, bedded silicic ash and pumicite, diatomite, tuffaceous sedimentary rocks, minor mudflow deposits, and some coarse epiclastic deposits. Vitroclastic material in some beds diagenetically altered to zeolites, secondary sil	3	Deer Butte Formation (OR016, OR025, OR024)Juntura Formation (OR015)Columbia River Basalt Group (OR001)Danforth Formation (obsolete) (OR018)Leslie Gulch Ash-Flow Tuff (OR173)Tuff of Spring Creek (OR173)
ORTm;0	ORTm	Marine sedimentary rocks (lower Pliocene? and upper Miocene)	Late Miocene to Early Pliocene	Massive, thick-bedded sandstone with minor interbeds of siltstone; local fossiliferous conglomerate lenses. Includes principally the Empire Formation of Baldwin (in Beaulieu and Hughes, 1975), originally considered of Pliocene age, but, on the basis of c	3	
ORTms;0	ORTms	Marine sedimentary rocks (middle and lower Miocene)	Early Miocene to Middle Miocene	Fine- to medium-grained Marine siltstone and sandstone that commonly contains tuff beds. Includes the Astoria Formation, which is mostly micaceous and carbonaceous sandstone, and the middle Miocene Gnat Creek Formation of Niem and Niem (1985), which over	3	

ORTmsc;0	ORTmsc	Marine siltstone, sandstone, and conglomerate (lower Eocene)	Early Eocene	Cobble and pebble conglomerate, pebbly sandstone, lithic sandstone, siltstone, and mudstone; massive to thin bedded; shelf and slope depositional setting. Contains foraminiferal faunas referred to the Penutian Stage of early Eocene age. Included by Dille	3	
ORTmsm;0	ORTmsm	Marine sandstone, siltstone, and mudstone (lower Eocene and Paleocene?)	Paleocene to Early Eocene	Rhythmically interbedded sandstone, siltstone, and mudstone with minor conglomerate; deposited in deep-sea fan depositional setting on submarine basalts of the Siletz River Volcanics. Contains foraminiferal faunas referred to the Penutian Stage of early	3	
ORTmss;0	ORTmss	Marine sandstone and siltstone (middle Eocene)	Middle Eocene	Thin- to thick-bedded, crossbedded, well-sorted, fine- to medium-grain sandstone, siltstone, and mudstone; characterized by sparse fine white mica; shallow marine depositional setting at least partly of deltaic origin. Contains foraminiferal and mollusca	3	
ORTmst;0	ORTmst	Marine sedimentary and tuffaceous rocks (middle Miocene to upper Eocene)	Late Eocene to Middle Miocene	Tuffaceous and arkosic sandstone, locally fossiliferous, tuffaceous siltstone, tuff, glauconitic sandstone, minor conglomerate layers and lenses, and a few thin coal beds. Includes Scappoose Formation (Trimble, 1963; Wells and others, 1983), mudstone of	3	
ORTmv;0	ORTmv	Mafic vent complexes (Miocene)	Miocene	Intrusive plugs and dike swarms and related near-vent flows, breccias, cinders, and agglutinate of basaltic andesite, basalt, and andesite; commonly in the form of eroded piles of red, iron-stained thin flows, cinders, and agglutinate cut by mafic intrus	1	
ORTn;0	ORTn	Nonmarine sedimentary rocks (Eocene)	Eocene	Continentally derived conglomerate, pebble conglomerate, sandstone, siltstone, and mudstone containing abundant biotite and muscovite. Dominantly nonvolcanic; clastic material derived from underlying older rocks	3	
ORTob;0	ORTob	Olivine basalt (Pliocene and Miocene)	Miocene to Pliocene	Thin, commonly open-textured (diktytaxitic), subophitic to intergranular olivine basalt flows, intercalated with and grades laterally through palagonite breccia and tuff into tuffaceous sedimentary rocks (unit Ts). In places includes flows of platy olivi	2	(OR018)Dalrymple Formation (obsolete; OR018; OR026)Antelope Flat Basalt (OR023; OR024)Madras (Deschutes) Formation (OR001)Shumuray Ranch Basalt (OR023; OR024)Hayes Butte Basalt (OR032)Drinkwater
ORTob?;0	ORTob?	Olivine basalt (Pliocene and Miocene)	Miocene to Pliocene	Thin, commonly open-textured (diktytaxitic), subophitic to intergranular olivine basalt flows, intercalated with and grades laterally through palagonite breccia and tuff into tuffaceous sedimentary rocks (unit Ts). In places includes flows of platy olivi	2	
ORTp;0	ORTp	Pyroclastic ejecta of basaltic cinder cones (lower Pliocene? and Miocene?)	Miocene to Early Pliocene	Mostly unconsolidated, oxidized, fine to course, scoriaceous cinders, bombs, and agglutinate deposited in subaerial environment	2	
ORTpb;0	ORTpb	Porphyritic basalt (upper Eocene)	Late Eocene	Subaerial lava flows and breccia of porphyritic basalt, minor basaltic andesite, and rare dacite. Includes basalt of Cascade Head (Wells and others, 1983), Yachats Basalt (Snavely and others, 1976c) and Goble Volcanic Series (Warren and others, 1945). Al	1	
ORTps;0	ORTps	Subaqueous pyroclastic ejecta of basaltic cinder cones (lower Pliocene? and Miocene?)	Miocene to Early Pliocene	Deposits of bombs, breccia, and mafic to intermediate tuff; occurs as palagonitic tuff and breccia cones, rings, and ridges. In places interbedded with lacustrine sedimentary rocks	2	

ORTr;0	ORTr	Rhyolite and dacite domes and flows and small hypabyssal intrusive bodies (Miocene to upper Eocene?)	Late Eocene to Miocene	Mostly light-gray to red, dense, flow-banded, nonporphyritic and porphyritic rhyolite and dacite in nested domes, small intrusive bodies, and related flows. Includes some near-vent breccias, pumice-lapilli tuffs, and coarse pumicites. Commonly associated	1	
ORTrb;0	ORTrb	Ridge-capping basalt and basaltic andesite (Pliocene and upper Miocene)	Late Miocene to Pliocene	Flows and flow breccia of basaltic andesite and lesser diktytaxitic to intergranular olivine basalt. Includes some dense, aphyric flows, commonly with either cryptocrystalline or pilotaxitic to trachytic texture, and porphyritic flows with phenocrysts an	1	Rhododendron Formation
ORTrh;0	ORTrh	Rhyolite and dacite (Pliocene? and Miocene)	Miocene to Pliocene	Ash-flow tuff, lava flows, pumice-lapilli tuff, coarse pumicite, flow breccia, and domal complexes of rhyolitic, rhyodacitic, and dacitic composition; in places includes peralkaline rhyolite and some andesite and andesite breccia. Locally porphyritic wit	2	Creek Rhyolite (OR023)Rhyolite of Double Mountain (OR136)Littlefield Rhyolite (OR023; OR024)Dooley Volcanics (OR170; formerly Dooley Volcanic Breccia; OR035)Rhyolite of Cottonwood Mountain (OR285; OR286; formerly r
ORTrh?;0	ORTrh?	Rhyolite and dacite (Pliocene? and Miocene)	Miocene to Pliocene	Ash-flow tuff, lava flows, pumice-lapilli tuff, coarse pumicite, flow breccia, and domal complexes of rhyolitic, rhyodacitic, and dacitic composition; in places includes peralkaline rhyolite and some andesite and andesite breccia. Locally porphyritic wit	2	
ORTRPsv;0	ORTRPsv	Sedimentary and volcanic rocks, partly metamorphosed (Triassic and Permian)	Permian to Triassic	Complexly folded, locally highly foliated and recrystallized undifferentiated sedimentary and volcanic rocks that in places are lithologically similar to Jurassic and Triassic rocks in the Aldrich Mountains of the Blue Mountains province and in other pla	2	
ORTRPv1;0	ORTRPv1	Volcanic rocks (Triassic and Permian)	Triassic and (or) Jurassic	Massive flows of porphyritic meta-andesite, metabasalt, spilite, and keratophyre, volcanic breccia, and subordinate amounts of fine-grained volcaniclastic rocks. In southwest Oregon includes hornblende, pyroxene, and plagioclase porphyritic andesite flow	1	
ORTRPv2;0	ORTRPv2	Volcanic rocks (Triassic and Permian)	Permian to Triassic	Massive flows of porphyritic meta-andesite, metabasalt, spilite, and keratophyre, volcanic breccia, and subordinate amounts of fine-grained volcaniclastic rocks. In eastern Oregon probably mostly Late Triassic in age, but includes some Permian rocks (OR	1	Clover Creek Greenstone (OR035)Gold Creek Greenstone (OR029)
ORTRPZg;0	ORTRPZg	Gabbroic rocks	Paleozoic to Triassic	Most gabbro genetically related to ultramafic rocks, but some probably derived from metamorphism of Triassic and older volcanic rocks	1	
ORTRPZm;0	ORTRPZm	Melange of Dutchmans Peak (Triassic or Paleozoic)	Paleozoic(?) to Jurassic(?)	Heterogeneous mixture of interlayered metasedimentary and metavolcanic rocks metamorphosed to upper greenschist and (or) almandine-amphibolite facies, and serpentinite, gabbro, and metagabbro (Smith and others, 1982)	2	

ORTRPZs1;0	ORTRPZs1	Sedimentary rocks, partly metamorphosed (Triassic and Paleozoic)	Paleozoic to Jurassic(?)	Poorly bedded argillite, chert, phyllite, phyllitic quartzite, calc-phyllite, impure limestone, and marble. In places rocks are strongly foliated. In Klamath Mountains of southwest Oregon, includes shale, mudstone, volcaniclastic sandstone, graywacke, co	2	
ORTRPZs2;0	ORTRPZs2	Sedimentary rocks, partly metamorphosed (Triassic and Paleozoic)	Paleozoic to Triassic	Poorly bedded argillite, chert, phyllite, phyllitic quartzite, calc-phyllite, impure limestone, and marble. In places rocks are strongly foliated. Sparse fossils (Fusilina, corals, and crinoids) indicate that the unit includes rocks of Leonardian, Och	2	Elkhorn Ridge Argillite (OR035; OR126)Coyote Butte Formation (OR085)
ORTRPZsn;0	ORTRPZsn	Marble	Permian to Triassic	Informally called the "Nelson marble" by Prostka (1967). Light-gray, fine-grained marble and medium- to dark-gray calcareous phyllite, exposed in a nearly continuous band from the Snake River westward through Nelson Station, about 6 km southeast of Durke	1	Nelson marble (OR030)
ORTRPZu;0	ORTRPZu	Ultramafic and mafic intrusive rocks and serpentinized equivalents (Triassic and Paleozoic)	Paleozoic to Triassic	Peridotite, pyroxenite, gabbro, and norite. Light-green, gray, and black serpentine, mostly derived from peridotite; commonly highly sheared; in places includes some metavolcanic rocks and metamorphosed inclusions of keratophyre and chert. Includes ultra	2	Canyon Mountain Complex (OR008; OR079; OR080)
ORTRs;0	ORTRs	Marine sedimentary rocks (Upper Triassic? and Upper and Middle Triassic)	Early Triassic	Black, green, and gray argillite, mudstone, and shale; graywacke, sandy limestone, tuff, and some coarse volcaniclastic rocks; chert, sandstone comprised of chert clasts, and chert pebble conglomerate; thin-bedded and massive limestone. Locally contains	3	Graywacke (OR008)Murderers Creek Graywacke (OR008)Vester Formation (OR008)Rail Cabin Argillite (OR028)Fields Formation (OR008)Martin Bridge Formation (OR029; OR074)Doyle Creek Formatio
ORTRsv;0	ORTRsv	Sedimentary and volcanic rocks (Upper? Triassic)	Late Triassic	Undifferentiated marine sedimentary rocks and volcanic rocks, locally slightly to moderately metamorphosed, of Late(?) Triassic age, exposed principally in Hells Canyon of Snake River, locally in tributary canyons of Imnaha River, and in several areas ma	2	
ORTRv;0	ORTRv	Volcanic and metavolcanic rocks (Upper Triassic)	Late Triassic	Green to gray spilite and keratophyre flows and flow breccia; and subordinate amounts of coarse volcaniclastic sandstone, tuff, sandstone, siltstone, chert, conglomerate, and limestone. Marine fauna from interlayered sedimentary rocks indicates unit is m	2	Huntington Formation (OR073)
ORTs;0	ORTs	Tuffaceous sedimentary rocks and tuff (Pliocene and Miocene)	Miocene to Pliocene	Semiconsolidated to well-consolidated mostly lacustrine tuffaceous sandstone, siltstone, mudstone, concretionary claystone, conglomerate, pumicite, diatomite, air-fall and water-deposited vitric ash, palagonitic tuff and tuff breccia, and fluvial sandsto	3	Drewsy Formation (OR009)Rattlesnake Formation (OR008)Dalles Formation (OR010; OR011)Shutler Formation (OR012)McKay Beds (OR013; OR014; OR015)Kern Basin Formation (OR016)Rome Beds (OR017)Danforth Formation (obsolete) (OR018)Bully Creek Format
ORTsd;0	ORTsd	Sedimentary rocks (Oligocene and upper Eocene)	Late Eocene to Oligocene	Marine shale siltstone, sandstone, and conglomerate, in places partly composed of tuffaceous and basaltic debris; interbeds of arkosic, glauconitic, and quartzose sandstone. Foraminifers are referable to the Refugian and Zemorrian Stages (see marine sedi	3	

ORTsf;0	ORTsf	Rhyolitic tuff, tuffaceous sedimentary rocks, and lava flows (lower Miocene, Oligocene, and uppermost Eocene?)	Late Eocene to Early Miocene	Rhyolitic to dacitic varicolored bedded tuff, lapilli tuff, and fine- to medium-grained tuffaceous sedimentary rocks with interstratified welded and nonwelded ash-flow tuff and interbedded basalt and andesite flows. Also includes minor rhyolite and dacit	3	Pike Creek Formation (OR005; formerly Pike Creek Volcanic Series; OR062)
ORTsff;0	ORTsff	Thin flows of basalt and andesite	Late Eocene to Early Miocene	Part of unit Tsfj; exact age uncertain	1	
ORTsfj;0	ORTsfj	John Day Formation of east-central Oregon (lower Miocene, Oligocene, and uppermost Eocene?)	Late Eocene to Early Miocene		3	
ORTsm;0	ORTsm	Marine sedimentary rocks (lower Miocene and Oligocene)	Oligocene to Early Miocene	Fossiliferous marine tuffaceous arkosic sandstone, and lesser conglomerate, sandstone, claystone, nonmarine volcanic sedimentary rocks, and minor coal. Molluscan and vertebrate (Cetacea) fossils indicate late Oligocene and Miocene age (Orr and Miller, 19	3	
ORTsr;0	ORTsr	Siletz River Volcanics and related rocks (middle and lower Eocene and Paleocene)	Paleocene to Middle Eocene	Aphanitic to porphyritic, vesicular pillow flows, tuff-breccias, massive lava flows and sills of tholeiitic and alkalic basalt. Upper part of sequence contains numerous interbeds of basaltic siltstone and sandstone, basaltic tuff, and locally derived bas	2	
ORTss;0	ORTss	Tuffaceous siltstone and sandstone (upper and middle Eocene)	Middle Eocene to Late Eocene	Thick- to thin-bedded marine tuffaceous mudstone, siltstone, and sandstone; fine to coarse grained. Contains calcareous concretions and, in places, is carbonaceous and micaceous. Includes the Nestucca Formation, which contains a foraminiferal assemblage	3	
ORTstv;0	ORTstv	Strawberry Volcanics (Pliocene? and Miocene)	Miocene to Pliocene	Flows and flow breccia of basalt, basaltic andesite, and andesite; includes restricted domal complexes and related flows and breccia of rhyolite and dacite (Thayer, 1957; Brown and Thayer, 1966). Potassium-argon ages are mostly in the range of 12 to 20 M	1	
ORTsv;0	ORTsv	Silicic vent complexes (Pliocene, Miocene, and upper Oligocene)	Miocene	Large, rhyolitic to dacitic vent areas in the Cascade Range that commonly include multiple intrusions and much associated silicic eruptive breccia and erosional debris and some flows	1	
ORTt;0	ORTt	Tyee Formation (middle Eocene)	Middle Eocene	Very thick sequence of rhymically bedded, medium- to fine-grained micaceous, feldspathic, lithic, or arkosic marine sandstone and micaceous carbonaceous siltstone; contains minor interbeds of dacite tuff in upper part. Foraminiferal fauna are referred to	3	
ORTts;0	ORTts	Tuffaceous sedimentary rocks, tuffs, pumicites, and silicic flows (Miocene)	Miocene	Moderately well indurated lacustrine and fluvial (flood-plain) deposits of tuff, pumicite, palagonite tuff, and lesser siltstone, arkosic sandstone, and pebble and cobble conglomerate. Locally contains some lignite beds. Former glass in silicic vitroclas	3	Mascall Formation (OR059)Sucker (Succor) Creek Formation (OR016; OR023; OR024)Drip Spring (OR023; OR024)Trout Creek Formation (OR060)Picture Gorge Basalt (OR061)

ORTtv;0	ORTtv	Tillamook Volcanics (upper and middle Eocene)	Middle Eocene to Late Eocene	Subaerial basaltic flows and breccia and submarine basaltic breccia, pillow lavas, lapilli and augite-rich tuff with interbeds of basaltic sandstone, siltstone, and conglomerate. Includes some basaltic andesite and, near the top of the sequence, some dac	2	
ORTtvm;0	ORTtvm	Marine facies	Middle Eocene to Late Eocene	Basaltic clastic rocks and pillow lavas, locally mapped separately by Wells and others (1983). Foraminiferal assemblages are assigned to the lower part of the Narizian Stage of Mallory (1959); see Wells and others (1983) for summary	2	
ORTtvm?;0	ORTtvm?	Marine facies	Middle Eocene to Late Eocene	Basaltic clastic rocks and pillow lavas, locally mapped separately by Wells and others (1983). Foraminiferal assemblages are assigned to the lower part of the Narizian Stage of Mallory (1959); see Wells and others (1983) for summary	2	
ORTu;0	ORTu	Undifferentiated tuffaceous sedimentary rocks, tuffs, and basalt (Miocene and Oligocene)	Oligocene to Miocene	Heterogeneous assemblage of continental, largely volcanogenic deposits of basalt and basaltic andesite, including flows and breccia, complexly interstratified with epiclastic and volcaniclastic deposits of basaltic to rhyodacitic composition. Includes ex	2	
ORTub;0	ORTub	Basaltic lava flows	Oligocene to Miocene	Basaltic and basaltic andesite lava flows and breccia; grades laterally into rare bedded palagonitic tuff and breccia	1	
ORTub?;0	ORTub?	Basaltic lava flows	Oligocene to Miocene	Basaltic and basaltic andesite lava flows and breccia; grades laterally into rare bedded palagonitic tuff and breccia	1	
ORTus;0	ORTus	Sedimentary and volcaniclastic rocks	Tertiary	Lapilli tuff, mudflow deposits (lahars), flow breccia, and volcanic conglomerate, mostly of basaltic to dacitic composition; rare iron-stained palagonitic tuff and breccia of basaltic and andesitic composition; and ash-flow, air-fall, and water-laid tuff	2	
ORTut;0	ORTut	Tuff	Tertiary	Welded to unwelded, mostly vitric crystal and vitric ash-flow tuff of several ages. Glass in tuff locally altered to clay, zeolites, and secondary silica minerals	3	
ORTvi;0	ORTvi	Mafic vent and intrusive rocks (Eocene?)	Eocene	Mostly plugs, dikes, and irregular intrusive bodies of basaltic andesite and porphyritic hornblende or pyroxene andesite. Represents some of vents for unit Tca and possibly for unit Tas	1	
ORTvm;0	ORTvm	Mafic and intermediate vent rocks (Pliocene? and Miocene)	Miocene to Pliocene	Basaltic and andesitic agglomerate, breccia, scoria, cinders, flows, and intrusive masses forming lava cones and small shields	1	
ORTvm?;0	ORTvm?	Mafic and intermediate vent rocks (Pliocene? and Miocene)	Miocene to Pliocene	Basaltic and andesitic agglomerate, breccia, scoria, cinders, flows, and intrusive masses forming lava cones and small shields	1	
ORTvs;0	ORTvs	Silicic vent rocks (Pliocene, Miocene, Oligocene, and Eocene?)	Eocene to Pliocene	Plugs and domal complexes of rhyolitic, rhyodacitic, and dacitic composition; includes related near-vent flows, flow breccia, and deposits of obsidian, perlite, and pumice. Locally includes resurgent domes related to caldera complexes. In southeast Orego	1	Westfall Butte Volcanics (OR148)Rhyolite of Star Mountain (OR149)

ORTwt;0	ORTwt	Welded tuffs and tuffaceous sedimentary rocks (upper? and middle Miocene)	Middle to Late Miocene	Partly to densely welded vitric and vitric-crystal tuff of soda-rhyolitic, rhyolitic, and rhyodacitic composition that interfingers with and grades laterally into unit Tit. Includes some nonwelded ash-flow tuff and tuffaceous sedimentary rocks. Potassium	2	Dinner Creek Welded Ash-Flow Tuff (OR023; OR024; OR054;OR055; OR114; OR117)Tuff of Kern Basin (OR137)Tuff of Oregon Canyon (OR177)Tuff of Trout Creek Mountains (OR177)Tuff of Double H (OR177)Tuff of Long Ridge (OR177)Tuff of Hoppin Peaks (OR177)T
ORTwt?;0	ORTwt?	Welded tuffs and tuffaceous sedimentary rocks (upper? and middle Miocene)	Middle to Late Miocene	Partly to densely welded vitric and vitric-crystal tuff of soda-rhyolitic, rhyolitic, and rhyodacitic composition that interfingers with and grades laterally into unit Tit. Includes some nonwelded ash-flow tuff and tuffaceous sedimentary rocks. Potassium	2	
ORTy;0	ORTy	Yamhill Formation and related rocks (upper and middle Eocene)	Middle Eocene to Late Eocene	Massive to thin-bedded concretionary marine siltstone and thin interbeds of arkosic, glauconitic, and basaltic sandstone; locally contains interlayered basalt lava flows and lapilli tuff. Foraminiferal assemblages in siltstone referred to the Ulatisian a	3	
ORTyq;0	ORTyq	Yaquina Formation (lower Miocene and upper Oligocene)	Late Oligocene to Early Miocene	Thick- to thin-bedded sandstone, conglomerate, and tuffaceous siltstone of deltaic origin; locally contains thin coal and ash beds. Conglomerate contains abundant clasts of pumice and dacitic volcanic rocks. In places includes thick lenses of marine tuff	3	
ORwater;0	ORwater	Open Water	Holocene	water	0	

UNIT_COM	ROCKTYPE1	ROCKTYPE2	ROCKTYPE3
	amphibolite	quartzite	schist; chert; gneiss
	schist	chert	greenstone
Considered part of Pickett Peak Terrane by Blake and others (1985).	pelitic schist	meta-basalt	chert
	ice		
The area mapped as Jc on the State Geologic Map is shown as "amphibolite gneiss" by Coleman (1972). This area is not the same as the area that includes the informally designated Chetco River complex of Hotz (1971), which is 10-20 km farther east.	amphibolite		
Considered part of the Rattlesnake Creek Terrane by Irwin (1994)	serpentinite	basalt	chert; argillite; conglomerate; sandstone; marble
Considered part of the Gold Beach Terrane by Blake and others (1985).	graywacke	mudstone	conglomerate; greenstone; limestone; chert; blueschist; serpentinite
	mudstone	graywacke	tuff; limestone; felsic volcanic rock; andesite; basalt; phyllite; slate
	shale	siltstone	graywacke
Unit is correlative with and lithologically similar to the Galice Formation.	mudstone	graywacke	conglomerate; chert
Includes part of the Chetco River complex of Hotz (1971).	tonalite	quartz diorite	granodiorite; gabbro; diorite

	granite	quartz diorite	
Metamorphosed equivalent rocks may be in the Mountain Home Metamorphic Complex (OR291; OR292)	mudstone		
Weatherby Formation (OR186) along south side of Burnt River is largely massive metagraywacke and contains cannibalistic conglomerate and tabular slide blocks of serpentine-matrix melange as much as a few hundred meters long, presumably from the Baker ter	graywacke	siltstone	conglomerate
	peridotite	serpentinite	gabbro; diabase
	basalt	mudstone	chert
	andesite	basalt	felsic volcanic rock; mudstone; chert
Part of unit in southwesternmost Oregon was mislabeled "Ks" on the State Geologic Map. The Humbug Mountain Conglomerate and Rocky Point Formation are considered part of the Elk Subterrane of the Western Klamath Terrane by Blakc and others (1985); the Ho	sandstone	mudstone	conglomerate
Considered part of the Yolla Bolly Terrane by Blake and others (1985)	graywacke	mudstone	conglomerate; chert
Considered part of Sixes River Terrane by Blake and others (1985).	mudstone	sandstone	conglomerate; limestone; blueschist; eclogite
Considered part of the Yolla Bolly Terrane by Blake and others (1985), which includes part of the Franciscan Complex in California.	basalt		

	quartz diorite	diorite	tonalite; gabbro
	gabbro	pyroxenite	peridotite; serpentinite
In OR291, unit includes three composite intrusions consisting of smaller individual intrusions that are chemically and petrographically distinct. The largest composite intrusion is the Bald Mountain batholith, which consists of the Elkhorn pluton (Lower	quartz diorite	trondhjemite	granodiorite
Part of Snow Camp Terrane of Blake and others (1985)	siltstone	sandstone	conglomerate; limestone
	graywacke	conglomerate	shale
Unit consists of a structurally higher subunit of metasedimentary rocks (May Creek Schist) and a structurally lower subunit of amphibolite as mapped by Irwin (1994).	amphibolite	mica schist	quartz-feldspar schist; quartzite; calc-silicate schist
Includes blueschist. Pennsylvanian and Permian fusilinids have been identified in some blocks of limestone (M.K. Nestell, personal commun., 1993)	serpentinite	gabbro	chert
	fine-grained mixed clastic	sandstone	chert
	limestone	sandstone	chert
The southwest quarter of the Bates 15' quadrangle (OR092) was renamed "Dixie Butte" quadrangle.	andesite	intermediate metavolcanic rock	
stratocones	basalt	andesite	dacite

Includes silt and fine sand deposited on broad benches adjacent to the Snake and Malheur Rivers by the Bonneville Flood (OR143; OR144; OR145; OR146) 14,000 years ago (late Pleistocene). In OR291, includes lacustrine silt, clay, and diatomite.	sand	gravel	silt; peat
Similar flows along the Owyhee River south of Rome (OR147) are included in map unit Tb.	basalt		
smaller cones and flows	basalt	andesite	
Eolian deposits not included in State map in La Grande area, but mapped in OR291, where it contains 0.5-1-m-thick accumulations of Mazama Aas (6.7 ka). Eolian deposits also mapped in the Hermiston area, northwestern Umatilla River Basin (OR292) near Col	sand		
Alluvial fan deposits not presented in State map (OR001) in Umatilla River Basin, but mapped there in OR292 on the western flank of the Blue Mountains uplift	alluvial fan	colluvium	talus
In OR291, glacial deposits include well preserved lateral and recessional morraines of late Pleistocene (10-30 ka) Pinedale glaciation and more poorly preserved lateral moraines of middle Pleistocene (150-200 ka) Bull Lake glaciation	gravel	moraine	
	glacial drift		
In OR292, unit includes late Pleistocene Missoula flood deposits consisting of unconsolidated to semi-consolidated deposits of sand, gravel, and silt	silt	sand	gravel
	silt	sand	caliche; gravel
	basalt		

In OR291, includes active or recently active slides marked by tilted trees and bent tree trunks. Includes debris flow deposits along the margins of Grande Ronde Valley formed during catastrophic collapse of high-standing dacite cliffs at Mt. Emily.Lands	landslide		
	dacite	rhyodacite	andesite
	rhyodacite	dacite	andesite
	clay or mud	silt	sand; evaporite
	rhyolite	dacite	tuff
	clay or mud	silt	sand; gravel
In OR291, includes terrace levels 60 m and 20-30 m above Grande Ronde Valley floor. Lower terrace dated as Pleistocene based on radiocarbon date of a mammoth tooth of 15,280+180 yr B.P. In OR292, includes a terrace that stands 20 m above the modern val	gravel	terrace	clay or mud; silt; sand
	andesite		
	basalt	tuff	
	basalt	andesite	
	gravel	alluvial terrace	

	basalt	andesite	
Unit is in a north-south zone along crest of Cascades and includes Newberry volcano.	basalt	andesite	
	basalt	andesite	
	basalt	andesite	
	sandstone	siltstone	conglomerate
Unit also occurs in eastern Oregon	rhyolite	andesite	pumice
	basalt	andesite	
	rhyolite	dacite	
Unit also occurs in eastern Oregon.	basalt	andesite	
	siltstone	sandstone	

Includes Alvord Creek Formation (OR064; formerly Alvord Creek Beds of Fuller (OR062). Contains multi-colored interstratified silicic to intermediate tuff, volcaniclastic sandstone and siltstone, and minor conglomerate and tuff breccia. Tuff and tufface	andesite	dacite	clastic
Includes the Wildcat Creek Welded Ash-Flow Tuff (est. 13-14 Ma; OR156; OR157).	rhyolite	dacite	
	basalt	andesite	tuff; mixed clastic/volcanic
Basalt of Malheur Gorge was formerly "unnamed igneous complex"; OR023; OR024). Unit includes part of middle Miocene Shumway Ranch Basalt (OR023; OR024); a poorly detailed thick section of basalt, andesite, and intercalated tuffaceous sedimentary rocks	basalt	andesite	tuff; ignimbrite; mixed clastic/volcanic
	andesite	basalt	dacite
Two dacite flows, a rhyolite dome, and a basalt flow were dated at 22.4 Ma (upper flow), 23.6+0.7 Ma (middle flow), and 22.1+0.7 Ma (OR184). Steens Mountain Volcanics (OR184; formerly OR062 and OR064) consists of hornblende- and pyroxene-hornblende-bear	basalt	andesite	
	basalt	andesite	
Unit in Umatilla River Basin (OR292) is interpreted as mostly Paleogene volcanic rocks (Eocene, Oligocene, and early Miocene?) that are mainly porphyritic andesite and dacite flows. Includes domes, volcaniclastic deposits, and shallow intrusions, basalt	andesite	basalt	rhyolite

In La Grange 30' x 60' quadrangle (OR291), unit is divided into: N2 magnetostratigraphic unit (msu; middle Miocene), pyroclastic vent deposits (middle Miocene), Ferroandesite of Fiddlers Hell (middle Miocene), R2 msu (middle Miocene), N1 msu (middle Mioc	basalt		
	basalt		
	sandstone	siltstone	claystone
In La Grande 30' x 60' quadrangle (OR291), unit includes Dayville Basalt, Monument Mountain Basalt, and Twickenham Basalt, all middle Miocene	basalt		
In Umatilla River Basin (OR292), includes the Pomona and Umatilla Members.	basalt		
	siltstone	sandstone	conglomerate; tuff; mafic volcanic rock
	mixed clastic/volcanic		
In La Grande 30' x 60' quadrangle (OR291), unit includes only the Frenchman Springs Member. In the Umatilla River Basin (OR292), includes the basalt of Powatka, Frenchman Springs Member, Sentinel Gap unit, Sand Hollow unit, and basalt of Lookingglass.	basalt		
	basalt	andesite	pyroclastic; clastic
	sandstone	siltstone	tuff; volcanic breccia (agglomerate)
	basalt		
	sandstone	siltstone	

	sandstone	siltstone	
	diorite	quartz diorite	gabbro; andesite; quartz monzonite; granodiorite
	gabbro	granitoid	
	alkalic intrusive rock		
	basalt	andesite	
	gabbro	diabase	
Northwestern Oregon	gabbro	diabase	diorite
Gabbro dikes, sills, and at least one plug intrude Steens Basalt in Northern Pueblo Mountains and are substantial in size, but too small to appear on State geologic map (OR252)	basalt	gabbro	andesite
Includes Leslie Gulch Ash-Flow Tuff and Tuff of Spring Creek (OR173)	volcanic ash	chemical	mudflow; conglomerate; tuff
	sandstone	siltstone	local fossiliferous conglomerate lenses
	siltstone	sandstone	tuff

	siltstone	sandstone	mudstone; conglomerate
	sandstone	siltstone	mudstone; conglomerate
	sandstone	siltstone	mudstone
	sandstone	siltstone	tuff; conglomerate; coal
	basalt	andesite	volcanic breccia (agglomerate)
	conglomerate	sandstone	siltstone; mudstone
	basalt	andesite	
	basalt	andesite	
	basalt	andesite	
	basalt	andesite	dacite
	pyroclastic	mafic volcanic rock	intermediate volcanic rock

	rhyolite	dacite	tuff
	mafic volcanic rock		
Includes rhyolite of the Silver City Range, (15.6-17.8+0.3 Ma (K-Ar; OR060; OR159; OR165; OR185; OR195); Littlefield Rhyolite (OR023; OR024), 15.2-16.8 Ma (40Ar/39Ar; OR179); rhyolite of McIntyre Ridge (OR170; formerly Dooley Rhyolite Breccia; OR035) the	rhyolite	dacite	andesite
In OR301, unit identified as John Day Formation. Upper part includes rhyolite flows and domes. Elsewhere, mainly air-fall and water-laid tuffs and varicolored tuffaceous clays with some welded tuffs and argillized coarse pumice-lapilli tuffs. Base of	rhyolite	dacite	rhyodacite;alkali rhyolite; andesite
As shown, may include some Jurassic rocks. Not shown on State map (OR001), but present in the La Grande 100K quadrangle (OR291) and Umatilla River Basin (OR292) as part of Mountain Home Metamorphic Complex is chlorite-mica schist of Permian and (or) Tr	meta-argillite	greenstone	slate
Unit is considered possibly correlative with the Hayfork Terrane by Irwin (1994)	andesite	basalt	dacite
	intermediate metavolcanic rock	meta-basalt	spilite
Not present on State map (OR001) in northeastern Oregon, but, in La Grande 30' x 60' quadrangle (OR291) may be mapped as amphibolite, metagabbro, and metadiorite (Triassic and Permian)	gabbro		
Considered part of Rattlesnake Creek Terrane by Irwin (1994)	metasedimentary rock	metavolcanic rock	serpentinite; gabbro

Most of unit is mapped as melange considered part of the Rattlesnake Creek Terrane by Irwin (1994)	mudstone	graywacke	conglomerate; chert; marble; tuff
Burnt River Schist encloses Nelson marble (unit TRPzsn), which was assigned a Late to Middle Triassic age based on conodonts (OR191). The Burnt River Schist is intruded by a 230 Ma (Middle Triassic) diorite (OR190).	argillite	chert	pelitic schist
	marble	phyllite	
Not defined on the State map (OR001) in the northeastern Oregon, but mapped in Umatilla River Basin (OR291) as ultramafic rocks (Triassic and Permian?)	peridotite	pyroxenite	gabbro
	argillite	shale	graywacke; limestone; tuff; chert; sandstone; lava flow
	mixed clastic/volcanic		
Huntington Formation (OR073) is predominantly agglomerate, tuff, and flows intercalated with coarse volcaniclastic breccia and conglomerate. Also contains volcanic graywacke, volcanic arenite, water-laid tuff, volcanic siltstone, and minor limestone. V	andesite	mixed clastic/volcanic	basalt; dacite; rhyolite; sandstone; pyroclastic
Also includes Chalk Butte Formation (OR016), Drip Springs Formation (OR023; OR024), sediments of Captain Keeney Pass (OR153), Glenns Ferry Formation (OR154; OR155), and part of the Grassy Mountain Basalt (OR121).In northern half Umatilla River Basin (OR	sandstone	siltstone	mudstone; conglomerate; pumice; diatomite; tuff; conglomerate
	shale	siltstone	sandstone; conglomerate

Basalt in the Pike Creek was dated at 21.9 Ma (OR010; recalculated using constants of OR185).	tuff	basalt	andesite
	basalt	andesite	
Unit in La Grande 30' x 60' quadrangle (OR291), reinterpreted as part of Oligocene and early Miocene Tower Mountain volcanic field with the main vent a 14-km-wide caldera (Tower Mountain caldera). Vent-filling ash-flow tuff is intruded by dacite and rh	mudstone	mixed clastic/volcanic	
	sandstone	conglomerate	claystone; coal
	tholeiite	alkaline basalt	volcanic breccia (agglomerate); sandstone; siltstone; conglomerate
	mudstone	siltstone	sandstone
The large area of Tstv shown on the State geologic map (OR001) northwest of Vale is a continuation of lower and middle Miocene rock units mapped to the south in the Vale 30'x 60' quadrangle (OR007) and includes rhyolite of Cottonwood Mountain, Hunter Cre	basalt	andesite	rhyolite; dacite
	rhyolite	dacite	
	sandstone	siltstone	tuff
	flood plain	tuff	rhyolite; siltstone; sandstone

	basalt	volcanic breccia (agglomerate)	andesite; dacite; sandstone; siltstone; conglomerate
	basalt	volcanic breccia (agglomerate)	andesite; dacite; sandstone; siltstone; conglomerate
	basalt	volcanic breccia (agglomerate)	andesite; dacite; sandstone; siltstone; conglomerate
	basalt	volcanic breccia (agglomerate)	dacite; andesite; ash-flow tuff; clastic
	basalt	volcanic breccia (agglomerate)	
	basalt	volcanic breccia (agglomerate)	
assorted rocks	sedimentary rock	pyroclastic	tuff
miscellaneous ash-flow tuffs of various Tertiary ages	ash-flow tuff		
	andesite	basalt	
	basalt	andesite	
	basalt	andesite	
The rhyolitic domal complexes become younger toward the northwest. Includes volcanics of Westfall Butte (OR148), which contains basalt, and rhyolite of Star Mountain (OR149).	rhyolite	latite	dacite

The Dinner Creek caldera source is in the Castle Peak area (OR156) or from a largely buried caldera north of Westfall Butte (OR178). Leslie Gulch Ash-Flow Tuff is associated wirth Mahogany Mountain caldera; tuff of Spring Creek, with Three Fingers cald	rhyolite	dacite	mudstone
In northeastern part of Ochoco Reservoir (15') quadrangle (OR302), unit includes rocks identified as parts of the John Day Formation: chiefly dacitic and rhyolitic tuff, pumice-lapilli tuff, and welded ash-flow tuff; and rhyolitic intrusive rocks locally	dacite	rhyolite	
	siltstone	sandstone	basalt; tuff
	sandstone	conglomerate	siltstone; coal; tuff
	water		

UNIT_LINK	UnitLinkShort	UNIT_NAME	UNIT_AGE
ORbc;0	ORbc	Amphibolite of Briggs Creek (Mesozoic or Paleozoic)	Paleozoic or Mesozoic
ORcm;0	ORcm	Condrey Mountain Schist (Triassic? and Paleozoic?)	Paleozoic(?) to Jurassic
ORcs;0	ORcs	Colebrooke Schist (Mesozoic or Paleozoic)	Paleozoic or Mesozoic
ORice;0	ORice	Ice	Holocene
ORJc;0	ORJc	Chetco complex of Hotz (1971) (Jurassic)	Late Jurassic
ORJm;0	ORJm	Melange (Jurassic)	Jurassic
ORJop;0	ORJop	Otter Point Formation of Dott (1971) and related rocks (Upper Jurassic)	Late Jurassic
ORJs1;0	ORJs1	Sedimentary rocks (Jurassic)	Late Jurassic
ORJs2;0	ORJs2	Sedimentary rocks (Jurassic)	Jurassic
ORJss;0	ORJss	Shale, mudstone, and sandstone (Jurassic)	Late Jurassic
ORJTRgd1;0	ORJTRgd1	Granite and diorite (Jurassic and Triassic)	Triassic and Jurassic
ORJTRgd2;0	ORJTRgd2	Granite and diorite (Jurassic and Triassic)	Triassic to Jurassic
ORJTRs;0	ORJTRs	Sedimentary rocks (Jurassic and Upper Triassic)	Triassic to Jurassic
ORJTRsv;0	ORJTRsv	Sedimentary and volcanic rocks (Jurassic and Upper Triassic?)	Late Triassic? to Jurassic
ORJu;0	ORJu	Ultramafic and related rocks of ophiolite sequences (Jurassic)	Paleozoic(?), Triassic(?), and Jurassic
ORJub;0	ORJub	Ultramafic and related rocks of ophiolite sequences; Basaltic volcanic and sedimentary rocks (Jurassic)	Jurassic
ORJv;0	ORJv	Volcanic rocks (Jurassic)	Late Jurassic
ORKc;0	ORKc	Clastic sedimentary rocks (Upper and Lower Cretaceous)	Early to Late Cretaceous
ORKJds1;0	ORKJds1	Sedimentary rocks of Dothan Formation and related rocks (Lower Cretaceous and Upper Jurassic)	Late Jurassic to Early Cretaceous
ORKJds2;0	ORKJds2	Sedimentary rocks of Dothan Formation and related rocks (Lower Cretaceous and Upper Jurassic)	Late Jurassic to Late Cretaceous
ORKJdv;0	ORKJdv	Volcanic rocks of the Dothan Formation and related rocks (Lower Cretaceous and Upper Jurassic)	Late Jurassic to Early Cretaceous

ORKJg;0	ORKJg	Granitic rocks (Cretaceous and Jurassic)	Late Jurassic and Early Cretaceous
ORKJgu;0	ORKJgu	Gabbro and ultramafic rocks associated with granitic plutons (Cretaceous and Jurassic)	Late Jurassic and Early Cretaceous
ORKJi;0	ORKJi	Intrusive rocks (Cretaceous and Jurassic)	Jurassic to Cretaceous
ORKJm;0	ORKJm	Myrtle Group (Lower Cretaceous and Upper Jurassic)	Late Jurassic to Early Cretaceous
ORKs;0	ORKs	Sedimentary rocks (Cretaceous)	Cretaceous
ORmc;0	ORmc	May Creek Schist (Paleozoic)	Paleozoic(?) to Jurassic
ORmr;0	ORmr	Mixed rocks (Mesozoic and Paleozoic)	Paleozoic to Mesozoic
ORPsv;0	ORPsv	Sedimentary and volcanic rocks, partly metamorphosed (Permian and Permian?)	Permian
ORPZs;0	ORPZs	Sedimentary rocks, partly metamorphosed (Paleozoic)	Paleozoic
ORPZsv;0	ORPZsv	Sedimentary and volcanic rocks, partly metamorphosed (Paleozoic)	Paleozoic
ORQa;0	ORQa	Andesite (Holocene and Pleistocene)	Quaternary
ORQal;0	ORQal	Alluvial deposits (Holocene)	Holocene
ORQb;0	ORQb	Basalt and basaltic andesite (Holocene and Pleistocene)	Pleistocene to Holocene
ORQba;0	ORQba	Basaltic andesite and basalt (Holocene? and Pleistocene)	Quaternary
ORQd;0	ORQd	Dune sand (Holocene)	Holocene
ORQf;0	ORQf	Fanglomerate (Holocene? and Pleistocene)	Pleistocene to Holocene
ORQg;0	ORQg	Glacial deposits (Pleistocene)	Pleistocene
ORQgf;0	ORQgf	Glaciofluvial deposits	Pleistocene
ORQgs;0	ORQgs	Glaciofluvial, lacustrine, and pediment sedimentary deposits (Holocene and Pleistocene)	Pleistocene
ORQl;0	ORQl	Loess (Holocene and Pleistocene)	Pleistocene to Holocene
ORQlb;0	ORQlb	Late basalt (Holocene or upper Pleistocene)	Late Pleistocene to Holocene
ORQls;0	ORQls	Landslide and debris-flow deposits (Holocene and Pleistocene)	Pleistocene to Holocene
ORQma;0	ORQma	Mazama ash-flow deposits (Holocene)	Holocene

ORQmp;0	ORQmp	Mazama pumice deposits (Holocene)	Holocene
ORQpl;0	ORQpl	Playa deposits (Holocene)	Holocene
ORQrd;0	ORQrd	Rhyolite and dacite (Holocene and Pleistocene)	Pleistocene to Holocene
ORQs;0	ORQs	Lacustrine and fluvial sedimentary rocks (Pleistocene)	Pleistocene
ORQt;0	ORQt	Terrace, pediment, and lag gravels (Holocene and Pleistocene)	Pleistocene to Holocene
ORQTa;0	ORQTa	Andesite (Pleistocene and Pliocene)	Pliocene to Pleistocene
ORQTb;0	ORQTb	Basalt (Pleistocene and Pliocene)	Pliocene to Pleistocene
ORQTba;0	ORQTba	Basalt and basaltic andesite (Pleistocene and Pliocene)	Pliocene to Pleistocene
ORQTg;0	ORQTg	Terrace gravels (Pleistocene and Pliocene)	Pliocene to Pleistocene
ORQTib;0	ORQTib	Intrusive basalt and andesite (Pleistocene, Pliocene, and Miocene)	Miocene to Pleistocene
ORQTmv;0	ORQTmv	Mafic vent complexes (Pleistocene, Pliocene, and Miocene?)	Late Miocene to Pleistocene
ORQTp;0	ORQTp	Pyroclastic ejecta of basaltic and andesitic cinder cones (Holocene, Pleistocene, Pliocene, and Miocene?)	Miocene to Holocene
ORQTps;0	ORQTps	Subaqueous pyroclastic ejecta of basaltic and andesitic cinder cones (Holocene, Pleistocene, Pliocene, and Miocene?)	Miocene to Holocene
ORQTs;0	ORQTs	Sedimentary rocks (Pleistocene and Pliocene)	Pliocene to Pleistocene
ORQTst;0	ORQTst	Tuffaceous sedimentary rocks and tuffs (lower? Pleistocene or Pliocene)	Pliocene to Early Pleistocene
ORQTvm;0	ORQTvm	Mafic vent deposits (Pleistocene, Pliocene, and Miocene?)	Miocene to Pleistocene
ORQTvs;0	ORQTvs	Silicic vent deposits (Pleistocene and Pliocene)	Pliocene to Pleistocene
ORQyb;0	ORQyb	Youngest basalt and basaltic andesite (Holocene)	Holocene
ORTa;0	ORTa	Alsea Formation (Oligocene and upper Eocene)	Late Eocene to Oligocene
ORTas;0	ORTas	Andesite and dacite and sedimentary rocks (Miocene? and Oligocene)	Oligocene to Miocene
ORTat;0	ORTat	Silicic ash-flow tuff (lower Pliocene and upper Miocene)	Late Miocene to Early Pliocene
ORTb;0	ORTb	Basalt (upper and middle Miocene)	Middle to Late Miocene

ORTba;0	ORTba	Basalt and andesite (Miocene)	Miocene
ORTbaa;0	ORTbaa	Basaltic and andesitic rocks (upper and middle Miocene)	Middle to Late Miocene
ORTbas;0	ORTbas	Andesitic and basaltic rocks on Steens Mountain	Miocene
ORTc;0	ORTc	Columbia River Basalt Group and related flows (Miocene)	Miocene
ORTca;0	ORTca	Clastic rocks and andesite flows (lower Oligocene?, Eocene, and Paleocene?)	Paleocene to Early Oligocene
ORTcg;0	ORTcg	Grande Ronde Basalt (middle and lower Miocene)	Early to Middle Miocene
ORTci;0	ORTci	Imnaha Basalt (lower Miocene)	Early Miocene
ORTco;0	ORTco	Cowlitz Formation (upper and middle Eocene)	Middle Eocene to Late Eocene
ORTcp;0	ORTcp	Picture Gorge Basalt (middle and lower Miocene)	Early to Middle Miocene
ORTcs;0	ORTcs	Saddle Mountains Basalt (upper and middle Miocene)	Middle to Late Miocene
ORTcss;0	ORTcss	Continental sedimentary rocks (upper and middle Miocene)	Middle Miocene to Late Miocene
ORTct;0	ORTct	Predominantly tuffaceous facies of Clarno Formation (lower Oligocene? and Eocene)	Eocene to Early Oligocene
ORTcw;0	ORTcw	Wanapum Basalt (middle Miocene)	Middle Miocene
ORTfc;0	ORTfc	Flows and clastic rocks, undifferentiated (Miocene)	Miocene
ORTfe;0	ORTfe	Fisher and Eugene Formations and correlative rocks (Oligocene and upper Eocene)	Late Eocene to Oligocene
ORTfeb;0	ORTfeb	Basaltic rocks	Late Eocene to Oligocene
ORTfee;0	ORTfee	Marine Eugene Formation, where mapped separately	Late Eocene to Oligocene
ORTfee?;0	ORTfee?	Marine Eugene Formation, where mapped separately	Late Eocene to Oligocene
ORThi;0	ORThi	Hypabyssal intrusive rocks (Miocene and Miocene?)	Miocene
ORTi;0	ORTi	Mafic intrusions (Oligocene)	Oligocene
ORTia;0	ORTia	Alkalic intrusive rocks (Oligocene and Eocene)	Eocene to Oligocene
ORTib;0	ORTib	Basalt and andesite intrusions (Pliocene, Miocene, and Oligocene?)	Oligocene(?) to Pliocene
ORTig;0	ORTig	Intrusive gabbroic rocks (Oligocene and Eocene)	Eocene to Oligocene

ORTim1;0	ORTim1	Mafic and intermediate intrusive rocks (Miocene)	Miocene
ORTim2;0	ORTim2	Mafic and intermediate intrusive rocks (Pliocene and Miocene)	Miocene to Pliocene
ORTlf;0	ORTlf	Lacustrine and fluvial deposits (Miocene)	Miocene
ORTm;0	ORTm	Marine sedimentary rocks (lower Pliocene? and upper Miocene)	Late Miocene to Early Pliocene
ORTms;0	ORTms	Marine sedimentary rocks (middle and lower Miocene)	Early Miocene to Middle Miocene
ORTmsc;0	ORTmsc	Marine siltstone, sandstone, and conglomerate (lower Eocene)	Early Eocene
ORTmsm;0	ORTmsm	Marine sandstone, siltstone, and mudstone (lower Eocene and Paleocene?)	Paleocene to Early Eocene
ORTmss;0	ORTmss	Marine sandstone and siltstone (middle Eocene)	Middle Eocene
ORTmst;0	ORTmst	Marine sedimentary and tuffaceous rocks (middle Miocene to upper Eocene)	Late Eocene to Middle Miocene
ORTmv;0	ORTmv	Mafic vent complexes (Miocene)	Miocene
ORTn;0	ORTn	Nonmarine sedimentary rocks (Eocene)	Eocene
ORTob;0	ORTob	Olivine basalt (Pliocene and Miocene)	Miocene to Pliocene
ORTob?;0	ORTob?	Olivine basalt (Pliocene and Miocene)	Miocene to Pliocene
ORTp;0	ORTp	Pyroclastic ejecta of basaltic cinder cones (lower Pliocene? and Miocene?)	Miocene to Early Pliocene
ORTpb;0	ORTpb	Porphyritic basalt (upper Eocene)	Late Eocene
ORTps;0	ORTps	Subaqueous pyroclastic ejecta of basaltic cinder cones (lower Pliocene? and Miocene?)	Miocene to Early Pliocene
ORTr;0	ORTr	Rhyolite and dacite domes and flows and small hypabyssal intrusive bodies (Miocene to upper Eocene?)	Late Eocene to Miocene
ORTrb;0	ORTrb	Ridge-capping basalt and basaltic andesite (Pliocene and upper Miocene)	Late Miocene to Pliocene
ORTrh;0	ORTrh	Rhyolite and dacite (Pliocene? and Miocene)	Miocene to Pliocene
ORTrh?;0	ORTrh?	Rhyolite and dacite (Pliocene? and Miocene)	Miocene to Pliocene
ORTRPsv;0	ORTRPsv	Sedimentary and volcanic rocks, partly metamorphosed (Triassic and Permian)	Permian to Triassic

ORTRPv1;0	ORTRPv1	Volcanic rocks (Triassic and Permian)	Triassic and (or) Jurassic
ORTRPv2;0	ORTRPv2	Volcanic rocks (Triassic and Permian)	Permian to Triassic
ORTRPZg;0	ORTRPZg	Gabbroic rocks	Paleozoic to Triassic
ORTRPZm;0	ORTRPZm	Melange of Dutchmans Peak (Triassic or Paleozoic)	Paleozoic(?) to Jurassic(?)
ORTRPZs1;0	ORTRPZs1	Sedimentary rocks, partly metamorphosed (Triassic and Paleozoic)	Paleozoic to Jurassic(?)
ORTRPZs2;0	ORTRPZs2	Sedimentary rocks, partly metamorphosed (Triassic and Paleozoic)	Paleozoic to Triassic
ORTRPZsn;0	ORTRPZsn	Marble	Permian to Triassic
ORTRPZu;0	ORTRPZu	Ultramafic and mafic intrusive rocks and serpentinized equivalents (Triassic and Paleozoic)	Paleozoic to Triassic
ORTRs;0	ORTRs	Marine sedimentary rocks (Upper Triassic? and Upper and Middle Triassic)	Early Triassic
ORTRsv;0	ORTRsv	Sedimentary and volcanic rocks (Upper? Triassic)	Late Triassic
ORTRv;0	ORTRv	Volcanic and metavolcanic rocks (Upper Triassic)	Late Triassic
ORTs;0	ORTs	Tuffaceous sedimentary rocks and tuff (Pliocene and Miocene)	Miocene to Pliocene
ORTsd;0	ORTsd	Sedimentary rocks (Oligocene and upper Eocene)	Late Eocene to Oligocene
ORTsf;0	ORTsf	Rhyolitic tuff, tuffaceous sedimentary rocks, and lava flows (lower Miocene, Oligocene, and uppermost Eocene?)	Late Eocene to Early Miocene
ORTsff;0	ORTsff	Thin flows of basalt and andesite	Late Eocene to Early Miocene
ORTsfj;0	ORTsfj	John Day Formation of east-central Oregon (lower Miocene, Oligocene, and uppermost Eocene?)	Late Eocene to Early Miocene
ORTsm;0	ORTsm	Marine sedimentary rocks (lower Miocene and Oligocene)	Oligocene to Early Miocene
ORTsr;0	ORTsr	Siletz River Volcanics and related rocks (middle and lower Eocene and Paleocene)	Paleocene to Middle Eocene
ORTss;0	ORTss	Tuffaceous siltstone and sandstone (upper and middle Eocene)	Middle Eocene to Late Eocene
ORTstv;0	ORTstv	Strawberry Volcanics (Pliocene? and Miocene)	Miocene to Pliocene
ORTsv;0	ORTsv	Silicic vent complexes (Pliocene, Miocene, and upper Oligocene)	Miocene

ORTt;0	ORTt	Tyee Formation (middle Eocene)	Middle Eocene
ORTts;0	ORTts	Tuffaceous sedimentary rocks, tuffs, pumicites, and silicic flows (Miocene)	Miocene
ORTtv;0	ORTtv	Tillamook Volcanics (upper and middle Eocene)	Middle Eocene to Late Eocene
ORTtvm;0	ORTtvm	Marine facies	Middle Eocene to Late Eocene
ORTtvm?;0	ORTtvm?	Marine facies	Middle Eocene to Late Eocene
ORTu;0	ORTu	Undifferentiated tuffaceous sedimentary rocks, tuffs, and basalt (Miocene and Oligocene)	Oligocene to Miocene
ORTub;0	ORTub	Basaltic lava flows	Oligocene to Miocene
ORTub?;0	ORTub?	Basaltic lava flows	Oligocene to Miocene
ORTus;0	ORTus	Sedimentary and volcaniclastic rocks	Tertiary
ORTut;0	ORTut	Tuff	Tertiary
ORTvi;0	ORTvi	Mafic vent and intrusive rocks (Eocene?)	Eocene
ORTvm;0	ORTvm	Mafic and intermediate vent rocks (Pliocene? and Miocene)	Miocene to Pliocene
ORTvm?;0	ORTvm?	Mafic and intermediate vent rocks (Pliocene? and Miocene)	Miocene to Pliocene
ORTvs;0	ORTvs	Silicic vent rocks (Pliocene, Miocene, Oligocene, and Eocene?)	Eocene to Pliocene
ORTwt;0	ORTwt	Welded tuffs and tuffaceous sedimentary rocks (upper? and middle Miocene)	Middle to Late Miocene
ORTwt?;0	ORTwt?	Welded tuffs and tuffaceous sedimentary rocks (upper? and middle Miocene)	Middle to Late Miocene
ORTy;0	ORTy	Yamhill Formation and related rocks (upper and middle Eocene)	Middle Eocene to Late Eocene
ORTyq;0	ORTyq	Yaquina Formation (lower Miocene and upper Oligocene)	Late Oligocene to Early Miocene
ORwater;0	ORwater	Open Water	Holocene

UNITDESC	FSP
Informally called the "Briggs Creek amphibolite" by Garcia (1976) and by Coleman and others (1976). Consists of amphibolite, micaceous quartzite, quartz schist, and recrystallized manganiferous chert. Includes structurally complex amphibole schist and qu	1
Consists of a variety of schistose rocks characterized by different proportions of muscovite, quartz, graphite, chlorite, actinolite, and epidote, rare thin layers of metachert, and clinozoisite-actinolite-albite-garnet metagabbro. Potassium-argon age on	2
Metamorphosed pelitic sedimentary rocks and subordinate metamorphosed submarine pillow lavas and pyroclastic beds of basaltic composition. Metamorphic age is Early Cretaceous (about 130 Ma), according to Coleman (1972), and protolith may be Jurassic or o	2
	1
Informally named unit representing island-arc volcanic complex comprised predominantly of igneous and metamorphosed volcanic rocks; includes gabbro, metagabbro, quartz diorite, and amphibolite	1
Structurally complex mixture of basaltic rocks, serpentinite, chert, argillite, conglomerate, silty sandstone, and lenses of marble composing the melange of the Takilma area of Smith and others (1982)	2
Highly sheared graywacke, mudstone, siltstone, and shale with lenses and pods of sheared greenstone, limestone, chert, blueschist, and serpentine. Identified as melange by some investigators	3
Black and gray mudstone, shale, siltstone, graywacke, andesitic to dacitic water-laid tuff, porcelaneous tuff, and minor interlayers and lenses of limestone and fine-grained sediments metamorphosed to phyllite or slate. Locally includes some felsite, and	3
Black and gray mudstone, shale, siltstone, graywacke, andesitic to dacitic water-laid tuff, porcelaneous tuff, and minor interlayers and lenses of limestone and fine-grained sediments metamorphosed to phyllite or slate. Locally includes some felsite, and	3
Black to gray shale, mudstone, and sandstone with local lenses of pebble conglomerate. Overlies Josephine ophiolite of Harper (1980) (unit Ju)	3
Felsic to intermediate, granitoid intrusive rocks. Includes Jurassic muscovite granodiorite, hornblende gabbro, tonalite, and quartz diorite of southwest Oregon (Smith and others, 1982)	1
Felsic to intermediate, granitoid intrusive rocks. Includes Jurassic muscovite granodiorite, hornblende gabbro, tonalite, and quartz diorite of southwest Oregon (Smith and others, 1982)	1
Black, dark-gray, and dark -brownish-gray, thin-bedded siliceous or limy mudstone mostly consists of the Hurwal Formation in the Wallowa Mountains. In lower and middle parts contains Triassic fossils and in upper part Early Jurassic fossils (Nolf, 1966).	3
Olive-drab, pale-brown, dark-gray, and black volcanic graywacke and siltstone; lesser conglomerate and slate, and minor limestone and chert. Includes more extensive outcrops of Triassic or Jurassic limestone at north base of Juniper Mountain in northern	3
Predominantly harzburgite and dunite with both cumulate and tectonite fabrics. Locally altered to serpentinite. Includes gabbroic rocks and sheeted diabasic dike complexes. Comprises Josephine ophiolite of Harper (1980), ophiolites of Onion Mountain, Sex	2
Basalt flows, flow breccia, agglomerate, pillow basalt and pillow breccia, and lesser shale, chert, siltstone, and mudstone of ophiolitic complexes	2
Lava flows, flow breccia, and agglomerate dominantly of plagioclase, pyroxene, and hornblende porphyritic and aphyric andesite. Includes flow rocks that range in composition from basalt to rhyolite as well as some interlayered tuff and tuffaceous sedimen	1
Locally fossiliferous sandstone and conglomerate; marine fossils indicate Early Cretaceous (Albian) age (Jones, 1960). Includes the Hornbrook Formation of Peck and others (1956), the Grove Creek strata of Jones (1960) and Page and others (1977), Hunters	3
Sandstone, conglomerate, graywacke, rhythmically banded chert lenses. Includes western Dothan and Otter Point Formations of M.C. Blake, Jr. and AS. Jayko (unpublished data, 1985) in Curry and southern Coos Counties	3
Sandstone, conglomerate, graywacke, rhythmically banded chert lenses. Includes western Dothan and Otter Point Formations of M.C. Blake, Jr. and AS. Jayko (unpublished data, 1985) in Curry and southern Coos Counties	3
Basaltic pillow lavas, volcanic breccia, and silicified basalt lava flows	1

Mostly tonalite and quartz diorite but including lesser amounts of other granitoid rocks. Potassium-argon ages determined on hornblende indicates plutons range in age from 143 to 166 Ma (Hotz, 1971)	1
Predominantly hornblende gabbro, gabbro, and olivine gabbro, but includes pyroxenite, hornblende pyroxene, and minor peridotite, dunite, and serpentinite (Smith and others, 1982)	1
Hornblende and biotite quartz diorite (tonalite), trondhjemite, granodiorite, and small amounts of norite, in batholithic masses and large dikelike bodies. Includes Bald Mountain Tonalite and Anthony Lake Granodiorite of Taubeneck (1957), tonalite and tr	1
Conglomerate, sandstone, siltstone, and limestone. Locally fossiliferous. As shown, includes Riddle and Days Creek Formations (Imlay and others, 1959; Jones, 1969)	3
Marine graywacke, subgraywacke, conglomerate, and shale. Pebbles and cobbles in conglomerate are well rounded volcanic and metavolcanic rocks, low-grade metasedimentary rocks, quartzite, chert, and minor silicic and intermediate plutonic rocks. Shales	3
Layered amphibolite, schist, gneiss, and quartzite. Protolith considered to be of Paleozoic age	1
Intermingled, commonly highly sheared metasedimentary, metavolcanic, and igneous rocks. Includes serpentinite, altered gabbro, chert, siliceous phyllite, greenstone, and limestone	2
Epiclastic and volcaniclastic rocks, chert, limestone, and lava flows of mid- or Early Permian(?) age that are moderately to intensely metamorphosed. Includes part of Hunsaker Creek Formation of Vallier (1977), in the eastern Blue Mountains province, com	2
Well-bedded limestone, fossiliferous cherty limestone, calcareous and carbonaceous sandstone, chert grit, argillite, and some conglomerate. In places foliated and metamorphosed. Includes fault slivers of Devonian rocks (Kleweno and Jeffords, 1961), Coffe	2
Undifferentiated sedimentary and volcanic rocks some of which are highly deformed and locally metamorphosed to amphibolite and schist. Occurs mostly in Strawberry and Aldrich Mountains of the Blue Mountains province. Includes undivided Paleozoic rocks an	2
Forms major stratovolcanoes dominantly of aphyric to porphyritic basaltic andesite and andesite; phenocrysts are principally pyroxene, olivine, plagioclase, and, rarely, hornblende. Locally includes dacite and minor basalt	1
Sand, gravel, and silt forming flood plains and filling channels of present streams. In places includes talus and slope wash. Locally includes soils containing abundant organic material, and thin peat beds	3
Thin flows of aphyric and porphyritic basalt and basaltic andesite, and open-textured (dikytaxitic), generally nonporphyritic, subophitic olivine basalt that commonly is highly feldspathic. Also includes some dissected intracanyon flows of porphyritic ba	1
Flows and flow breccia dominantly of basaltic andesite containing plagioclase, olivine, and pyroxene phenocrysts and olivine-bearing basalt representing part of the volcanic sequence of the High Cascade Range (Thayer, 1937). Unit mostly forms small shiel	1
Large areas of windblown sand composed of rock-forming minerals, mostly feldspar and small amounts of quartz, and, in southeastern Oregon, also pumice	3
Poorly sorted and poorly stratified alluvial fan debris, slope wash, colluvium, and talus; composed mostly of silt and fragments of basalt, basaltic andesite, and andesite. In places includes small areas of pediment gravels and colluvium	3
Unsorted bouldery gravel, sand, and rock flour in ground, terminal, and lateral moraines. Locally partly sorted	3
Poorly sorted	3
Unconsolidated, poorly sorted silt, sand, and gravel. Includes lacustrine deposits west of Columbia River Gorge (Trimble, 1963). Mostly in northern Morrow and Umatilla Counties where unit represents deposits of swollen late Pleistocene Columbia River (Ho	3
Windblown clayey silt and fine sand. Includes the Pleistocene Palouse Formation and deposits derived mostly from reworking of Palouse Formation. Contains local interbedded layers of soil, caliche, and some water-laid silt and gravel	3
Thin flows of scoriaceous, mostly olivine-bearing basalt in southeast Oregon; upper surfaces of flows characterized by blocky, spiny, or pahoehoe structures and by pressure ridges and tumuli, all essentially unmodified by erosion. Occurs at Diamond and J	1
Unstratified mixtures of fragments of adjacent bedrock. Locally includes slope wash and colluvium. Largest slides and debris flows occur where thick sections of basalt and andesite flows overlie clayey tuffaceous rocks. May include some deposits of late	3
Rhyodacitic to andesitic ash-flow deposits related to climactic eruptions of Mount Mazama about 6,845 yr B.P. (14C) (Bacon, 1983)	3

Primary and reworked air-fall rhyodacite pumice related to climactic eruptions of Mount Mazama about 6,845 yr B.P.(14C). Mapped only where it extensively covers older units	3
Clay, silt, sand, and some evaporites	3
Domes and related flows and flow breccia of aphyric and plagioclase and hornblende porphyritic rhyolite and dacite. Includes rhyolite and dacite on Newberry volcano and at South Sister volcano in the Cascade Range that are younger than Mazama ash deposit	1
Unconsolidated to semiconsolidated lacustrine clay, silt, sand, and gravel; in places includes mudflow and fluvial deposits and discontinuous layers of peat. Includes older alluvium and related deposits of Piper (1942), Willamette Silt (Allison, 1953; We	3
Unconsolidated deposits of gravel, cobbles, and boulders intermixed and locally interlayered with clay, silt, and sand. Mostly on terraces and pediments above present flood plains. Includes older alluvium of Smith and others (1982) in the Klamath Mountai	2
Flows and flow breccia in the High Cascade Province composed dominantly of aphyric to porphyritic basaltic andesite and andesite. Mostly represents remnants of moderately to deeply eroded stratovolcanoes. Phenocrysts are mostly plagioclase, olivine, clin	1
Thin flows and minor flow breccia of open--textured (diktytaxitic) olivine basalt in southeastern part of map area. Locally contains thin interbeds of sedimentary rocks. Grades laterally through palagonite tuff and breccia into sedimentary rocks (unit QT	1
Flows, flow breccia, and pyroclastic deposits. Flows are aphanitic to finely crystalline, commonly diktytaxitic, and aphyric to porphyritic. Textures are mostly intergranular grading to intersertal; some andesite flows are finely trachytic and a few basa	1
Unconsolidated to poorly consolidated, poorly sorted gravels and bouldery soil above modern stream channels. In Cascade Range, clasts mostly basalt and andesite. Includes some glacial outwash deposits. In Eastern Oregon, commonly cemented by caliche	2
Sills, plugs and dikes of basaltic andesite, basalt, and andesite. In the Cascade Range most of these represent feeders, exposed by erosion, for flows and flow breccias of units Tba and Trb and a few are feeders for units QTba and QTa; in foothills of we	1
Plugs, dikes, and related near-vent flows, breccia, cinders, and agglutinate of basalt, basaltic andesite, and andesite; commonly in the form of either little-modified lava cones or partly eroded piles of reddish, iron-stained thin flows and fragmental e	1
Mostly unconsolidated, oxidized, fine to coarse, scoriaceous cinders, bombs, and agglutinate deposited in subaerial environment	2
Partly consolidated, palagonitized, fine to coarse, scoriaceous altered cinders, bombs, breccia, and minor agglutinate, mostly deposited in subaqueous environment. Commonly with some interlayers and intermixed lacustrine sedimentary rocks. Forms palagoni	2
Semiconsolidated lacustrine and fluvial ashy and palagonitic sedimentary rocks, mostly tuffaceous sandstone and siltstone; locally contains abundant palagonitized basaltic debris and some pebble conglomerate. Includes alluvial gravel and mudflow deposits	3
Rhyolitic to andesitic ash-flow tuffs, pumice-fall deposits, minor mud flows, and older alluvium on the flanks of Newberry volcano (MacLeod and others, 1981; 1982) and in areas west and northwest of Bend	3
Mostly in small stratovolcanoes or shield volcanoes and lava cones of basalt and andesite. Includes agglomerate, breccia, scoria, cinders, ash, restricted flows, and small basaltic intrusive bodies. Transitional into pyroclastic rocks of cinder cones (QT	1
Complex domal masses of rhyolite and dacite that include near-vent flows, breccia, pumicite, perlite, obsidian, and ash-flow tuff	2
Little-modified flows and associated breccia of basaltic andesite and some basalt in both central part of Cascade Range and on slopes of Newberry Volcano. Relations to Mazama pumice deposits indicate most of these rocks are less than 6,800 yr old (14C);	1
Massive to thick-bedded tuffaceous marine siltstone and fine-grained sandstone; locally concretionary. Foraminiferal assemblages assigned to the Zemorrian and upper Refugian Stages (Kleinpell, 1938; Rau, 1975) and molluscan fauna assigned (Snavely and ot	3
Lava flows, breccia, volcaniclastic and epiclastic rocks mostly of andesitic and dacitic composition; includes minor amounts of altered basaltic rocks. Joint surfaces and cavities commonly lined with hematite or montmorillonite clay, secondary silica min	2
Ash-flow tuff and associated pumiceous air-fall tuff mostly of rhyolitic and rhyodacitic composition; includes minor tuffaceous sedimentary rocks. Grades laterally through less-densely welded tuff to nonwelded ash-flow tuff and interlayered tuffaceous se	3
Basalt flows, flow breccia, and basaltic peperite; minor andesite flows; some interbeds of tuff and tuffaceous sedimentary rocks. Basalt is aphyric to moderately porphyritic with phenocrysts of plagioclase and olivine and exhibits both subophitic and dik	1

Lava flows and breccia of aphyric and plagioclase porphyritic basalt and aphyric andesite; locally includes flow breccia, peperite, some palagonite tuff and breccia, and minor silicic ash-flow tuff and interbeds of tuffaceous sedimentary rocks. In Basin 1

Lava flows and flow breccia of hypersthene and olivine andesite, basaltic andesite containing plagioclase and pyroxene phenocrysts, and basalt; many flows contain phenocrysts of both hypersthene and augite. Includes interbedded volcaniclastic and epiclas 1

Called Steens Mountain Volcanic Series by Walker (1977); Steens Mountain Andesitic Series of Fuller (1931) and Williams and Compton (1953) 1

Subaerial basalt and minor andesite lava flows and flow breccia; submarine palagonitic tuff and pillow complexes of the Columbia River Basalt Group (Swanson and others, 1979); locally includes invasive basalt flows. Flows locally grade laterally into sub 1

Mostly andesitic lava flows, domes, breccia, and small intrusive masses and lesser basaltic to rhyolitic rocks; interlayered saprolite, bedded volcaniclastic and epiclastic mudstone, claystone, siltstone, sandstone, conglomerate, and mudflow (lahar) depo 2

Flows of dark-gray to black, aphyric tholeiitic basalt, including both high- and low-Mg chemical types (Swanson and others, 1979). Potassium-argon ages mostly in the range of 15 to 17 Ma (Lux, 1982; Watkins and Baksi, 1974; Fiebelkorn and others, 1983) 1

Mostly coarse-grained, plagioclase porphyritic basalt; flows commonly contain zeolite amygdules and montmorillonitic alteration is widespread. Potassium-argon ages mostly 16 to 17 Ma (McKee and others, 1981) 1

Micaceous, arkosic to basaltic marine sandstone, siltstone, and mudstone. Foraminiferal assemblages are referred to the upper Narizian Stage of Mallory (1959) in Newton and Van Atta (1976) 3

Flows of aphyric and plagioclase porphyritic flood basalt. Potassium-argon ages mostly 15.0 to 16.4 Ma (Watkins and Baksi, 1974; Fiebelkorn and others, 1983) 1

Petrographically diverse flows of basalt erupted between about 13.5 and 6 Ma (McKee and others, 1977; Swanson and others, 1979) 1

Poorly sorted and poorly bedded, fine- to coarse-grained tuffaceous siltstone, sandstone, pebble conglomerate, agglomerate, volcanic cobble conglomerate, air-fall tuff, and rare basaltic andesite flows equivalent to those in unit Tba. Included in the Mio 3

Mapped separately by Swanson (1969a) in the Ochoco and Maury Mountains of the Blue Mountains Province 3

Flows of gray to dark-gray, medium-grained, commonly plagioclase porphyritic basalt of Frenchman Springs petrochemical type (Wright and others, 1973). Generally exhibits blocky to platy jointing. Potassium-argon ages mostly about 15 Ma (Lux, 1982; Fiebel 1

Chiefly basaltic andesite and andesite lava flows and flow breccia containing plagioclase and pyroxene (hypersthene and augite) phenocrysts, mudflows (lahars), and volcanic conglomerates; locally includes some dacite flows. Includes lesser, coarse- to fi 1

Thin to moderately thick bedded, coarse- to fine-grained arkosic and micaceous sandstone and siltstone, locally highly pumiceous, of the marine Eugene Formation; and coeval and older andesitic lapilli tuff, breccia, water-laid and air-fall silicic ash of 3

Probably part of Fisher Formation 1

3

3

Hypabyssal, medium-grained, hornblende diorite and quartz diorite in small stocks and large dikes; includes intrusions of medium- to fine-grained gabbro and plugs and small stocks of medium-grained, holocrystalline, olivine andesite. Also includes medium 1

Sheets, sills, and dikes of massive granophyric ferrogabbro; some bodies strongly differentiated and include pegmatitic gabbro, ferrogranophyre, and granophyre (MacLeod, 1981). Plagioclase and amphibole from unit have yielded K-Ar ages of about 30 Ma (Sn 1

Sills, dikes, stocks, and irregular intrusions of porphyritic or aphanitic camptonite, shonkinite, and. nepheline syenite or phonolite. Potassium-argon ages of 32 to 35 Ma obtained on camptonite and nepheline syenite (Snavely and others, 1976c; Fiebelkor 1

Sills, plugs and dikes of basaltic andesite, basalt, and andesite. Mostly represents feeders, exposed by erosion, for flows and flow breccias of units Tba and Trb. Includes a few dikes of hornblende and plagioclase porphyritic andesite, commonly altered, 1

Sills and dikes of basalt, diabase, gabbro, and granophyric gabbro; locally albitized and zeolitized (Snavely and others, 1976a, b) 1

Dikes, plugs, and sills of basalt, diabase, gabbro, and lesser andesite that fed many of the Miocene basalt and andesite flows in unit Tc. Some intrusions are rootless and are invasive into sedimentary sequences; includes related breccia and peperite. In	1
Dikes, plugs, and sills of basalt, diabase, gabbro, and lesser andesite that fed many of the Miocene basalt and andesite flows in units Tc and Tba. Some intrusions are rootless and are invasive into sedimentary sequences; includes related breccia and pe	1
Poorly to moderately consolidated, bedded silicic ash and pumicite, diatomite, tuffaceous sedimentary rocks, minor mudflow deposits, and some coarse epiclastic deposits. Vitroclastic material in some beds diagenetically altered to zeolites, secondary sil	3
Massive, thick-bedded sandstone with minor interbeds of siltstone; local fossiliferous conglomerate lenses. Includes principally the Empire Formation of Baldwin (in Beaulieu and Hughes, 1975), originally considered of Pliocene age, but, on the basis of c	3
Fine- to medium-grained Marine siltstone and sandstone that commonly contains tuff beds. Includes the Astoria Formation, which is mostly micaceous and carbonaceous sandstone, and the middle Miocene Gnat Creek Formation of Niem and Niem (1985), which over	3
Cobble and pebble conglomerate, pebbly sandstone, lithic sandstone, siltstone, and mudstone; massive to thin bedded; shelf and slope depositional setting. Contains foraminiferal faunas referred to the Penutian Stage of early Eocene age. Included by Dille	3
Rhythmically interbedded sandstone, siltstone, and mudstone with minor conglomerate; deposited in deep-sea fan depositional setting on submarine basalts of the Siletz River Volcanics. Contains foraminiferal faunas referred to the Penutian Stage of early	3
Thin- to thick-bedded, crossbedded, well-sorted, fine- to medium-grain sandstone, siltstone, and mudstone; characterized by sparse fine white mica; shallow marine depositional setting at least partly of deltaic origin. Contains foraminiferal and mollusca	3
Tuffaceous and arkosic sandstone, locally fossiliferous, tuffaceous siltstone, tuff, glauconitic sandstone, minor conglomerate layers and lenses, and a few thin coal beds. Includes Scappoose Formation (Trimble, 1963; Wells and others, 1983), mudstone of	3
Intrusive plugs and dike swarms and related near-vent flows, breccias, cinders, and agglutinate of basaltic andesite, basalt, and andesite; commonly in the form of eroded piles of red, iron-stained thin flows, cinders, and agglutinate cut by mafic intrus	1
Continentally derived conglomerate, pebble conglomerate, sandstone, siltstone, and mudstone containing abundant biotite and muscovite. Dominantly nonvolcanic; clastic material derived from underlying older rocks	3
Thin, commonly open-textured (diktytaxitic), subophitic to intergranular olivine basalt flows, intercalated with and grades laterally through palagonite breccia and tuff into tuffaceous sedimentary rocks (unit Ts). In places includes flows of platy olivi	2
Thin, commonly open-textured (diktytaxitic), subophitic to intergranular olivine basalt flows, intercalated with and grades laterally through palagonite breccia and tuff into tuffaceous sedimentary rocks (unit Ts). In places includes flows of platy olivi	2
Mostly unconsolidated, oxidized, fine to course, scoriaceous cinders, bombs, and agglutinate deposited in subaerial environment	2
Subaerial lava flows and breccia of porphyritic basalt, minor basaltic andesite, and rare dacite. Includes basalt of Cascade Head (Wells and others, 1983), Yachats Basalt (Snavely and others, 1976c) and Goble Volcanic Series (Warren and others, 1945). Al	1
Deposits of bombs, breccia, and mafic to intermediate tuff; occurs as palagonitic tuff and breccia cones, rings, and ridges. In places interbedded with lacustrine sedimentary rocks	2
Mostly light-gray to red, dense, flow-banded, nonporphyritic and porphyritic rhyolite and dacite in nested domes, small intrusive bodies, and related flows. Includes some near-vent breccias, pumice-lapilli tuffs, and coarse pumicites. Commonly associated	1
Flows and flow breccia of basaltic andesite and lesser diktytaxitic to intergranular olivine basalt. Includes some dense, aphyric flows, commonly with either cryptocrystalline or pilotaxitic to trachytic texture, and porphyritic flows with phenocrysts an	1
Ash-flow tuff, lava flows, pumice-lapilli tuff, coarse pumicite, flow breccia, and domal complexes of rhyolitic, rhyodacitic, and dacitic composition; in places includes peralkaline rhyolite and some andesite and andesite breccia. Locally porphyritic wit	2
Ash-flow tuff, lava flows, pumice-lapilli tuff, coarse pumicite, flow breccia, and domal complexes of rhyolitic, rhyodacitic, and dacitic composition; in places includes peralkaline rhyolite and some andesite and andesite breccia. Locally porphyritic wit	2
Complexly folded, locally highly foliated and recrystallized undifferentiated sedimentary and volcanic rocks that in places are lithologically similar to Jurassic and Triassic rocks in the Aldrich Mountains of the Blue Mountains province and in other pla	2

Massive flows of porphyritic meta-andesite, metabasalt, spilite, and keratophyre, volcanic breccia, and subordinate amounts of fine-grained volcaniclastic rocks. In southwest Oregon includes hornblende, pyroxene, and plagioclase porphyritic andesite flow	1
Massive flows of porphyritic meta-andesite, metabasalt, spilite, and keratophyre, volcanic breccia, and subordinate amounts of fine-grained volcaniclastic rocks. In eastern Oregon probably mostly Late Triassic in age, but includes some Permian rocks (OR	1
Most gabbro genetically related to ultramafic rocks, but some probably derived from metamorphism of Triassic and older volcanic rocks	1
Heterogeneous mixture of interlayered metasedimentary and metavolcanic rocks metamorphosed to upper greenschist and (or) almandine-amphibolite facies, and serpentinite, gabbro, and metagabbro (Smith and others, 1982)	2
Poorly bedded argillite, chert, phyllite, phyllitic quartzite, calc-phyllite, impure limestone, and marble. In places rocks are strongly foliated. In Klamath Mountains of southwest Oregon, includes shale, mudstone, volcaniclastic sandstone, graywacke, co	2
Poorly bedded argillite, chert, phyllite, phyllitic quartzite, calc-phyllite, impure limestone, and marble. In places rocks are strongly foliated. Sparse fossils (Fusilina, corals, and crinoids) indicate that the unit includes rocks of Leonardian, Och	2
Informally called the "Nelson marble" by Prostka (1967). Light-gray, fine-grained marble and medium- to dark-gray calcareous phyllite, exposed in a nearly continuous band from the Snake River westward through Nelson Station, about 6 km southeast of Durke	1
Peridotite, pyroxenite, gabbro, and norite. Light-green, gray, and black serpentine, mostly derived from peridotite; commonly highly sheared; in places includes some metavolcanic rocks and metamorphosed inclusions of keratophyre and chert. Includes ultra	2
Black, green, and gray argillite, mudstone, and shale; graywacke, sandy limestone, tuff, and some coarse volcaniclastic rocks; chert, sandstone comprised of chert clasts, and chert pebble conglomerate; thin-bedded and massive limestone. Locally contains	3
Undifferentiated marine sedimentary rocks and volcanic rocks, locally slightly to moderately metamorphosed, of Late(?) Triassic age, exposed principally in Hells Canyon of Snake River, locally in tributary canyons of Imnaha River, and in several areas ma	2
Green to gray spilite and keratophyre flows and flow breccia; and subordinate amounts of coarse volcaniclastic sandstone, tuff, sandstone, siltstone, chert, conglomerate, and limestone. Marine fauna from interlayered sedimentary rocks indicates unit is m	2
Semiconsolidated to well-consolidated mostly lacustrine tuffaceous sandstone, siltstone, mudstone, concretionary claystone, conglomerate, pumicite, diatomite, air-fall and water-deposited vitric ash, palagonitic tuff and tuff breccia, and fluvial sandsto	3
Marine shale siltstone, sandstone, and conglomerate, in places partly composed of tuffaceous and basaltic debris; interbeds of arkosic, glauconitic, and quartzose sandstone. Foraminifers are referable to the Refugian and Zemorrian Stages (see marine sedi	3
Rhyolitic to dacitic varicolored bedded tuff, lapilli tuff, and fine- to medium-grained tuffaceous sedimentary rocks with interstratified welded and nonwelded ash-flow tuff and interbedded basalt and andesite flows. Also includes minor rhyolite and dacit	3
Part of unit Tsfj; exact age uncertain	1
	3
Fossiliferous marine tuffaceous arkosic sandstone, and lesser conglomerate, sandstone, claystone, nonmarine volcanic sedimentary rocks, and minor coal. Molluscan and vertebrate (Cetacea) fossils indicate late Oligocene and Miocene age (Orr and Miller, 19	3
Aphanitic to porphyritic, vesicular pillow flows, tuff-breccias, massive lava flows and sills of tholeiitic and alkalic basalt. Upper part of sequence contains numerous interbeds of basaltic siltstone and sandstone, basaltic tuff, and locally derived bas	2
Thick- to thin-bedded marine tuffaceous mudstone, siltstone, and sandstone; fine to coarse grained. Contains calcareous concretions and, in places, is carbonaceous and micaceous. Includes the Nestucca Formation, which contains a foraminiferal assemblage	3
Flows and flow breccia of basalt, basaltic andesite, and andesite; includes restricted domal complexes and related flows and breccia of rhyolite and dacite (Thayer, 1957; Brown and Thayer, 1966). Potassium-argon ages are mostly in the range of 12 to 20 M	1
Large, rhyolitic to dacitic vent areas in the Cascade Range that commonly include multiple intrusions and much associated silicic eruptive breccia and erosional debris and some flows	1

Very thick sequence of rhymically bedded, medium- to fine-grained micaceous, feldspathic, lithic, or arkosic marine sandstone and micaceous carbonaceous siltstone; contains minor interbeds of dacite tuff in upper part. Foraminiferal fauna are referred to	3
Moderately well indurated lacustrine and fluvial (flood-plain) deposits of tuff, pumicite, palagonite tuff, and lesser siltstone, arkosic sandstone, and pebble and cobble conglomerate. Locally contains some lignite beds. Former glass in silicic vitroclas	3
Subaerial basaltic flows and breccia and submarine basaltic breccia, pillow lavas, lapilli and augite-rich tuff with interbeds of basaltic sandstone, siltstone, and conglomerate. Includes some basaltic andesite and, near the top of the sequence, some dac	2
Basaltic clastic rocks and pillow lavas, locally mapped separately by Wells and others (1983). Foraminiferal assemblages are assigned to the lower part of the Narizian Stage of Mallory (1959); see Wells and others (1983) for summary	2
Basaltic clastic rocks and pillow lavas, locally mapped separately by Wells and others (1983). Foraminiferal assemblages are assigned to the lower part of the Narizian Stage of Mallory (1959); see Wells and others (1983) for summary	2
Heterogeneous assemblage of continental, largely volcanogenic deposits of basalt and basaltic andesite, including flows and breccia, complexly interstratified with epiclastic and volcaniclastic deposits of basaltic to rhyodacitic composition. Includes ex	2
Basaltic and basaltic andesite lava flows and breccia; grades laterally into rare bedded palagonitic tuff and breccia	1
Basaltic and basaltic andesite lava flows and breccia; grades laterally into rare bedded palagonitic tuff and breccia	1
Lapilli tuff, mudflow deposits (lahars), flow breccia, and volcanic conglomerate, mostly of basaltic to dacitic composition; rare iron-stained palagonitic tuff and breccia of basaltic and andesitic composition; and ash-flow, air-fall, and water-laid tuff	2
Welded to unwelded, mostly vitric crystal and vitric ash-flow tuff of several ages. Glass in tuff locally altered to clay, zeolites, and secondary silica minerals	3
Mostly plugs, dikes, and irregular intrusive bodies of basaltic andesite and porphyritic hornblende or pyroxene andesite. Represents some of vents for unit Tca and possibly for unit Tas	1
Basaltic and andesitic agglomerate, breccia, scoria, cinders, flows, and intrusive masses forming lava cones and small shields	1
Basaltic and andesitic agglomerate, breccia, scoria, cinders, flows, and intrusive masses forming lava cones and small shields	1
Plugs and domal complexes of rhyolitic, rhyodacitic, and dacitic composition; includes related near-vent flows, flow breccia, and deposits of obsidian, perlite, and pumice. Locally includes resurgent domes related to caldera complexes. In southeast Orego	1
Partly to densely welded vitric and vitric-crystal tuff of soda-rhyolitic, rhyolitic, and rhyodacitic composition that interfingers with and grades laterally into unit Tit. Includes some nonwelded ash-flow tuff and tuffaceous sedimentary rocks. Potassium	2
Partly to densely welded vitric and vitric-crystal tuff of soda-rhyolitic, rhyolitic, and rhyodacitic composition that interfingers with and grades laterally into unit Tit. Includes some nonwelded ash-flow tuff and tuffaceous sedimentary rocks. Potassium	2
Massive to thin-bedded concretionary marine siltstone and thin interbeds of arkosic, glauconitic, and basaltic sandstone; locally contains interlayered basalt lava flows and lapilli tuff. Foraminiferal assemblages in siltstone referred to the Ulatisian a	3
Thick- to thin-bedded sandstone, conglomerate, and tuffaceous siltstone of deltaic origin; locally contains thin coal and ash beds. Conglomerate contains abundant clasts of pumice and dacitic volcanic rocks. In places includes thick lenses of marine tuff	3
water	0

STRAT_UNIT	UNIT_COM
	Considered part of Pickett Peak Terrane by Blake and others (1985).
	The area mapped as Jc on the State Geologic Map is shown as "amphibolite gneiss" by Coleman (1972). This area is not the same as the area that includes the informally designated Chetco River complex of Hotz (1971), which is 10-20 km farther east.
	Considered part of the Rattlesnake Creek Terrane by Irwin (1994)
	Considered part of the Gold Beach Terrane by Blake and others (1985).
Graylock Formation (OR028)Mowich Group (OR028)Snowshoe Formation (OR070)Shaw Member of Snowshoe Formation (OR028)Keller Creek Shale (OR008)Weberg Formation (OR070)Warm Springs Formation (OR070)Trowbridge Formation (OR070)Lonesome Formation (OR070	
	Unit is correlative with and lithologically similar to the Galice Formation.
	Includes part of the Chetco River complex of Hotz (1971).
Oxbow Complex (OR104; OR105)Canyon Mountain Complex (OR008; OR078)	
Hurwal Formation (OR074)	Metamorphosed equivalent rocks may be in the Mountain Home Metamorphic Complex (OR291; OR292)
Weatherby Formation (OR186)	Weatherby Formation (OR186) along south side of Burnt River is largely massive metagraywacke and contains cannibalistic conglomerate and tabular slide blocks of serpentine-matrix melange as much as a few hundred meters long, presumably from the Baker ter
Houstenaden Creek Formation	Part of unit in southwesternmost Oregon was mislabeled "Ks" on the State Geologic Map. The Humbug Mountain Conglomerate and Rocky Point Formation are considered part of the Elk Subterrane of the Western Klamath Terrane by Blakc and others (1985); the Ho
	Considered part of the Yolla Bolly Terrane by Blake and others (1985)
	Considered part of Sixes River Terrane by Blake and others (1985).
	Considered part of the Yolla Bolly Terrane by Blake and others (1985), which includes part of the Franciscan Complex in California.

In OR291, unit includes three composite intrusions consisting of smaller individual intrusions that are chemically and petrographically distinct. The largest composite intrusion is the Bald Mountain batholith, which consists of the Elkhorn pluton (Lower

Part of Snow Camp Terrane of Blake and others (1985)

Hudspeth Formation (OR049)Gable Creek Formation (OR049)Bernard Formation (OR028)

Unit consists of a structurally higher subunit of metasedimentary rocks (May Creek Schist) and a structurally lower subunit of amphibolite as mapped by Irwin (1994).

Includes blueschist. Pennsylvanian and Permian fusilinids have been identified in some blocks of limestone (M.K. Nestell, personal commun., 1993)

Hunsaker Creek Formation (OR075)

Coffee Creek Formation (OR085; OR091)Spotted Ridge Formation (OR085; OR091)

Dixie Butte Meta-andesite

The southwest quarter of the Bates 15' quadrangle (OR092) was renamed "Dixie Butte" quadrangle.

stratocones

Includes silt and fine sand deposited on broad benches adjacent to the Snake and Malheur Rivers by the Bonneville Flood (OR143; OR144; OR145; OR146) 14,000 years ago (late Pleistocene). In OR291, includes lacustrine silt, clay, and diatomite.

Similar flows along the Owyhee River south of Rome (OR147) are included in map unit Tb.

smaller cones and flows

Eolian deposits not included in State map in La Grande area, but mapped in OR291, where it contains 0.5-1-m-thick accumulations of Mazama Aas (6.7 ka). Eolian deposits also mapped in the Hermiston area, northwestern Umatilla River Basin (OR292) near Col

Alluvial fan deposits not presented in State map (OR001) in Umatilla River Basin, but mapped there in OR292 on the western flank of the Blue Mountains uplift

In OR291, glacial deposits include well preserved lateral and recessional morraines of late Pleistocene (10-30 ka) Pinedale glaciation and more poorly preserved lateral moraines of middle Pleistocene (150-200 ka) Bull Lake glaciation

In OR292, unit includes late Pleistocene Missoula flood deposits consisting of unconsolidated to semi-consolidated deposits of sand, gravel, and silt

Palouse Formation

In OR291, includes active or recently active slides marked by tilted trees and bent tree trunks. Includes debris flow deposits along the margins of Grande Ronde Valley formed during catastrophic collapse of high-standing dacite cliffs at Mt. Emily.Lands

	In OR291, includes terrace levels 60 m and 20-30 m above Grande Ronde Valley floor. Lower terrace dated as Pleistocene based on radiocarbon date of a mammoth tooth of 15,280+180 yr B.P. In OR292, includes a terrace that stands 20 m above the modern val
	Unit is in a north-south zone along crest of Cascades and includes Newberry volcano.
	Unit also occurs in eastern Oregon
	Unit also occurs in eastern Oregon.
Alvord Creek Formation (OR064; formerly Alvord Creek Beds; 062)	Includes Alvord Creek Formation (OR064; formerly Alvord Creek Beds of Fuller (OR062). Contains multi-colored interstratified silicic to intermediate tuff, volcaniclastic sandstone and siltstone, and minor conglomerate and tuff breccia. Tuff and tufface
Devine CanyonAsh-Flow Tuff (OR026)Prater Creek Ash-Flow Tuff (OR026)Rattlesnake Ash-Flow Tuff (OR026)Danforth Formation (obsolete) (OR018)Columbia River Group (OR008)Peyerl Tuff (OR032)Wildcat Creek Welded Ash-Flow Tuff (OR156; OR157)	Includes the Wildcat Creek Welded Ash-Flow Tuff (est. 13-14 Ma; OR156; OR157).
Picture Rock Basalt (OR032)Deer Butte Formation (OR023; OR024)Basaltic andesite flows on Freezeout Mountain (Freezeout Mountain Voilcanics; OR141)Owyhee Basalt (OR023; OR024)Tims Peak Basalt (OR023; OR024)Blackjack Basalt (OR121)Flows of Hammond Hi	

Steens Basalt (Steens Mountain Basalt (OR118; OR062)Hunter Creek Basalt (OR023; OR024)Basalt and latite unit (OR159; OR165)Basalt of Bishop's Ranch (OR023; OR024)Flows of Prineville chemical type (OR049)Basalt of Malheur Gorge (OR114; OR117; formerl	Basalt of Malheur Gorge was formerly "unnamed igneous complex"; OR023; OR024). Unit includes part of middle Miocene Shumway Ranch Basalt (OR023; OR024); a poorly detailed thick section of basalt, andesite, and intercalated tuffaceous sedimentary rocks
Steens Mountain Volcanics (OR184; formerly Steens Mountain Volcanic Series; OR062)Steens Mountain Andesitic Series (OR062; OR064)Pike Creek Formation (OR184; formerly Tcs, Saddle Mountains BasaltTcw, Wanapum BasaltTcg, Grande Ronde BasaltTcp, Picture Gorge BasaltTci, Imnaha Basalt	Two dacite flows, a rhyolite dome, and a basalt flow were dated at 22.4 Ma (upper flow), 23.6+0.7 Ma (middle flow), and 22.1+0.7 Ma (OR184). Steens Mountain Volcanics (OR184; formerly OR062 and OR064) consists of hornblende- and pyroxene-hornblende-bear
Clarno Formation	Unit in Umatilla River Basin (OR292) is interpreted as mostly Paleogene volcanic rocks (Eocene, Oligocene, and early Miocene?) that are mainly porphyritic andesite and dacite flows. Includes domes, volcaniclastic deposits, and shallow intrusions, basalt In La Grange 30' x 60' quadrangle (OR291), unit is divided into: N2 magnetostratigraphic unit (msu; middle Miocene), pyroclastic vent deposits (middle Miocene), Ferroandesite of Fiddlers Hell (middle Miocene), R2 msu (middle Miocene), N1 msu (middle Mioc
	In La Grande 30' x 60' quadrangle (OR291), unit includes Dayville Basalt, Monument Mountain Basalt, and Twickenham Basalt, all middle Miocene In Umatilla River Basin (OR292), includes the Pomona and Umatilla Members.
	In La Grande 30' x 60' quadrangle (OR291), unit includes only the Frenchman Springs Member. In the Umatilla River Basin (OR292), includes the basalt of Powatka, Frenchman Springs Member, Sentinel Gap unit, Sand Hollow unit, and basalt of Lookingglass.

Northwestern Oregon

Gabbro dikes, sills, and at least one plug intrude Steens Basalt in Northern Pueblo Mountains and are substantial in size, but too small to appear on State geologic map (OR252)

Deer Butte Formation (OR016; OR023; OR024)Juntura Formation (OR015)Columbia River Basalt Group (OR001)Danforth Formation (obsolete) (OR018)Leslie Gulch Ash-Flow Tuff (OR173)Tuff of Spring Creek (OR173)

Includes Leslie Gulch Ash-Flow Tuff and Tuff of Spring Creek (OR173)

Dalles Formation (OR011; OR012)Grassy Mountain Basalt (OR016)Danforth Formation (obsolete; OR018; OR026)Antelope Flat Basalt (OR023; OR024)Madras (Deschutes) Formation (OR001)Shumuray Ranch Basalt (OR023; OR024)Hayes Butte Basalt (OR032)Drinkwater

Rhododendron Formation

Rhyolite at Owyhee Dam (OR023)Jump Creek Rhyolite (OR023)Rhyolite of Double Mountain (OR136)Littlefield Rhyolite (OR023; OR024)Dooley Volcanics (OR170; formerly Dooley Volcanic Breccia; OR035)Rhyolite of Cottonwood Mountain (OR285; OR286; formerly r

Includes rhyolite of the Silver City Range, (15.6-17.8+0.3 Ma (K-Ar; OR060; OR159; OR165; OR185; OR195); Littlefield Rhyolite (OR023; OR024), 15.2-16.8 Ma (40Ar/39Ar; OR179); rhyolite of McIntyre Ridge (OR170; formerly Dooley Rhyolite Breccia; OR035) the

In OR301, unit identified as John Day Formation. Upper part includes rhyolite flows and domes. Elsewhere, mainly air-fall and water-laid tuffs and varicolored tuffaceous clays with some welded tuffs and argillized coarse pumice-lapilli tuffs. Base of

As shown, may include some Jurassic rocks. Not shown on State map (OR001), but present in the La Grande 100K quadrangle (OR291) and Umatilla River Basin (OR292) as part of Mountain Home Metamorphic Complex is chlorite-mica schist of Permian and (or) Tr

	Unit is considered possibly correlative with the Hayfork Terrane by Irwin (1994)
Clover Creek Greenstone (OR035)Gold Creek Greenstone (OR029)	
	Not present on State map (OR001) in northeastern Oregon, but, in La Grande 30' x 60' quadrangle (OR291) may be mapped as amphibolite, metagabbro, and metadiorite (Triassic and Permian)
	Considered part of Rattlesnake Creek Terrane by Irwin (1994)
	Most of unit is mapped as melange considered part of the Rattlesnake Creek Terrane by Irwin (1994)
Elkhorn Ridge Argillite (OR035; OR126)Coyote Butte Formation (OR085)	Burnt River Schist encloses Nelson marble (unit TRPzsn), which was assigned a Late to Middle Triassic age based on conodonts (OR191). The Burnt River Schist is intruded by a 230 Ma (Middle Triassic) diorite (OR190).
Nelson marble (OR030)	
Canyon Mountain Complex (OR008; OR079; OR080)	Not defined on the State map (OR001) in the northeastern Oregon, but mapped in Umatilla River Basin (OR291) as ultramafic rocks (Triassic and Permian?)
Begg Formation (OR028)Brisbois Formation (OR028)Laycock Creek Graywacke (OR008)Murderers Creek Graywacke (OR008)Vester Formation (OR008)Rail Cabin Argillite (OR028)Fields Formation (OR008)Martin Bridge Formation (OR029; OR074)Doyle Creek Formatio	
Huntington Formation (OR073)	Huntington Formation (OR073) is predominantly agglomerate, tuff, and flows intercalated with coarse volcaniclastic breccia and conglomerate. Also contains volcanic graywacke, volcanic arenite, water-laid tuff, volcanic siltstone, and minor limestone. V
Drewsy Formation (OR009)Rattlesnake Formation (OR008)Dalles Formation (OR010; OR011)Shutler Formation (OR012)McKay Beds (OR013; OR014; OR015)Kern Basin Formation (OR016)Rome Beds (OR017)Danforth Formation (obsolete) (OR018)Bully Creek Format	Also includes Chalk Butte Formation (OR016), Drip Springs Formation (OR023; OR024), sediments of Captain Keeney Pass (OR153), Glenns Ferry Formation (OR154; OR155), and part of the Grassy Mountain Basalt (OR121).In northern half Umatilla River Basin (OR
Pike Creek Formation (OR005; formerly Pike Creek Volcanic Series; OR062)	Basalt in the Pike Creek was dated at 21.9 Ma (OR010; recalculated using constants of OR185).
	Unit in La Grande 30' x 60' quadrangle (OR291), reinterpreted as part of Oligocene and early Miocene Tower Mountain volcanic field with the main vent a 14-km-wide caldera (Tower Mountain caldera). Vent-filling ash-flow tuff is intruded by dacite and rh
	The large area of Tstv shown on the State geologic map (OR001) northwest of Vale is a continuation of lower and middle Miocene rock units mapped to the south in the Vale 30'x 60' quadrangle (OR007) and includes rhyolite of Cottonwood Mountain, Hunter Cre

Mascall Formation (OR059)Sucker (Succor) Creek Formation (OR016; OR023; OR024)Drip Spring (OR023; OR024)Trout Creek Formation (OR060)Picture Gorge Basalt (OR061)	
	assorted rocks
	miscellaneous ash-flow tuffs of various Tertiary ages
Westfall Butte Volcanics (OR148)Rhyolite of Star Mountain (OR149)	The rhyolitic domal complexes become younger toward the northwest. Includes volcanics of Westfall Butte (OR148), which contains basalt, and rhyolite of Star Mountain (OR149).
Dinner Creek Welded Ash-Flow Tuff (OR023; OR024; OR054;OR055; OR114; OR117)Tuff of Kern Basin (OR137)Tuff of Oregon Canyon (OR177)Tuff of Trout Creek Mountains (OR177)Tuff of Double H (OR177)Tuff of Long Ridge (OR177)Tuff of Hoppin Peaks (OR177)T	The Dinner Creek caldera source is in the Castle Peak area (OR156) or from a largely buried caldera north of Westfall Butte (OR178). Leslie Gulch Ash-Flow Tuff is associated wirth Mahogany Mountain caldera; tuff of Spring Creek, with Three Fingers cald
	In northeastern part of Ochoco Reservoir (15') quadrangle (OR302), unit includes rocks identified as parts of the John Day Formation: chiefly dacitic and rhyolitic tuff, pumice-lapilli tuff, and welded ash-flow tuff; and rhyolitic intrusive rocks locally

ROCKTYPE1	ROCKTYPE2	ROCKTYPE3
amphibolite	quartzite	schist; chert; gneiss
schist	chert	greenstone
pelitic schist ice	meta-basalt	chert
amphibolite		
serpentinite	basalt	chert; argillite; conglomerate; sandstone; marble
graywacke	mudstone	conglomerate; greenstone; limestone; chert; blueschist; serpentinite
mudstone	graywacke	tuff; limestone; felsic volcanic rock; andesite; basalt; phyllite; slate
shale	siltstone	graywacke
mudstone	graywacke	conglomerate; chert
tonalite	quartz diorite	granodiorite; gabbro; diorite
granite	quartz diorite	
mudstone		
graywacke	siltstone	conglomerate
peridotite	serpentinite	gabbro; diabase
basalt	mudstone	chert
andesite	basalt	felsic volcanic rock; mudstone; chert
sandstone	mudstone	conglomerate
graywacke	mudstone	conglomerate; chert
mudstone	sandstone	conglomerate; limestone; blueschist; eclogite
basalt		

quartz diorite	diorite	tonalite; gabbro
gabbro	pyroxenite	peridotite; serpentinite
quartz diorite	trondhjemite	granodiorite
siltstone	sandstone	conglomerate; limestone
graywacke	conglomerate	shale
amphibolite	mica schist	quartz-feldspar schist; quartzite; calc-silicate schist
serpentinite	gabbro	chert
fine-grained mixe	sandstone	chert
limestone	sandstone	chert
andesite	intermediate metavolcanic rock	
basalt	andesite	dacite
sand	gravel	silt; peat
basalt		
basalt	andesite	
sand		
alluvial fan	colluvium	talus
gravel glacial drift	moraine	
silt	sand	gravel
silt	sand	caliche; gravel
basalt		
landslide		
dacite	rhyodacite	andesite

rhyodacite	dacite	andesite
clay or mud	silt	sand; evaporite
rhyolite	dacite	tuff
clay or mud	silt	sand; gravel
gravel	terrace	clay or mud; silt; sand
andesite		
basalt	tuff	
basalt	andesite	
gravel	alluvial terrace	
basalt	andesite	
basalt	andesite	
basalt	andesite	
basalt	andesite	
sandstone	siltstone	conglomerate
rhyolite	andesite	pumice
basalt	andesite	
rhyolite	dacite	
basalt	andesite	
siltstone	sandstone	
andesite	dacite	clastic
rhyolite	dacite	
basalt	andesite	tuff; mixed clastic/volcanic

basalt	andesite	tuff; ignimbrite; mixed clastic/volcanic
andesite	basalt	dacite
basalt	andesite	
basalt	andesite	
andesite	basalt	rhyolite
basalt		
basalt		
sandstone	siltstone	claystone
basalt		
basalt		
siltstone	sandstone	conglomerate; tuff; mafic volcanic rock
mixed clastic/volcanic		
basalt		
basalt	andesite	pyroclastic; clastic
sandstone	siltstone	tuff; volcanic breccia (agglomerate)
basalt		
sandstone	siltstone	
sandstone	siltstone	
diorite	quartz diorite	gabbro; andesite; quartz monzonite; granodiorite
gabbro	granitoid	
alkalic intrusive rock		
basalt	andesite	
gabbro	diabase	

gabbro	diabase	diorite
basalt	gabbro	andesite
volcanic ash	chemical	mudflow; conglomerate; tuff
sandstone	siltstone	local fossiliferous conglomerate lenses
siltstone	sandstone	tuff
siltstone	sandstone	mudstone; conglomerate
sandstone	siltstone	mudstone; conglomerate
sandstone	siltstone	mudstone
sandstone	siltstone	tuff; conglomerate; coal
basalt	andesite	volcanic breccia (agglomerate)
conglomerate	sandstone	siltstone; mudstone
basalt	andesite	
basalt	andesite	
basalt	andesite	
basalt	andesite	dacite
pyroclastic	mafic volcanic ro	intermediate volcanic rock
rhyolite	dacite	tuff
mafic volcanic rock		
rhyolite	dacite	andesite
rhyolite	dacite	rhyodacite;alkali rhyolite; andesite
meta-argillite	greenstone	slate

andesite	basalt	dacite
intermediate met	meta-basalt	spilite
gabbro		
metasedimentary,	metavolcanic roc	serpentinite; gabbro
mudstone	graywacke	conglomerate; chert; marble; tuff
argillite	chert	pelitic schist
marble	phyllite	
peridotite	pyroxenite	gabbro
argillite	shale	graywacke; limestone; tuff; chert; sandstone; lava flow
mixed clastic/volcanic		
andesite	mixed clastic/volc	basalt; dacite; rhyolite; sandstone; pyroclastic
sandstone	siltstone	mudstone; conglomerate; pumice; diatomite; tuff; conglomerate
shale	siltstone	sandstone; conglomerate
tuff	basalt	andesite
basalt	andesite	
mudstone	mixed clastic/volcanic	
sandstone	conglomerate	claystone; coal
tholeiite	alkaline basalt	volcanic breccia (agglomerate); sandstone; siltstone; conglomerate
mudstone	siltstone	sandstone
basalt	andesite	rhyolite; dacite
rhyolite	dacite	

sandstone	siltstone	tuff
flood plain	tuff	rhyolite; siltstone; sandstone
basalt	volcanic breccia	andesite; dacite; sandstone; siltstone; conglomerate
basalt	volcanic breccia	andesite; dacite; sandstone; siltstone; conglomerate
basalt	volcanic breccia	andesite; dacite; sandstone; siltstone; conglomerate
basalt	volcanic breccia	dacite; andesite; ash-flow tuff; clastic
basalt	volcanic breccia	(agglomerate)
basalt	volcanic breccia	(agglomerate)
sedimentary rock	pyroclastic	tuff
ash-flow tuff		
andesite	basalt	
basalt	andesite	
basalt	andesite	
rhyolite	latite	dacite
rhyolite	dacite	mudstone
dacite	rhyolite	
siltstone	sandstone	basalt; tuff
sandstone	conglomerate	siltstone; coal; tuff
water		